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RAILWAY AGE

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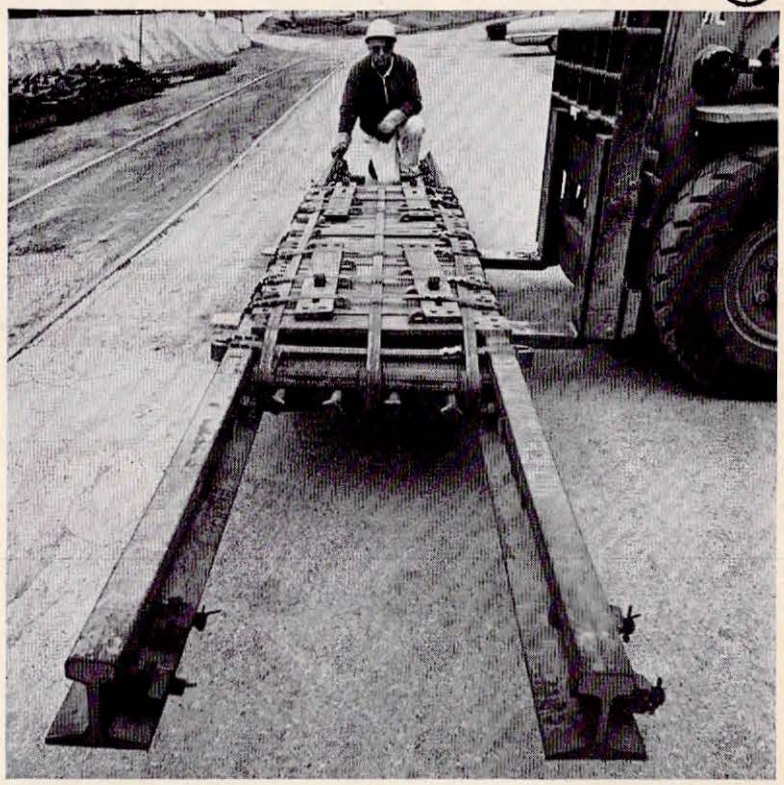
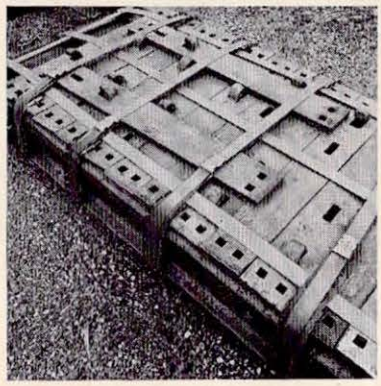
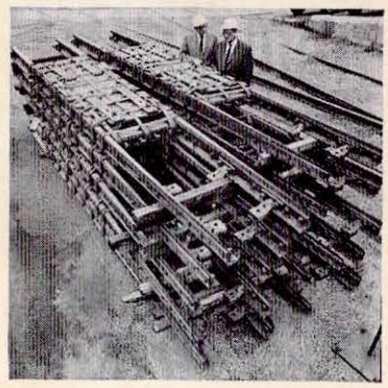


It's the latest time-and-money saving convenience developed by Bethlehem trackwork specialists, and it's already paying off for one trunk-line railroad.

The "kit" is framed by the two switch points and two heel blocks. Included within the box thus formed are all the tie plates, bolts, rods, and other material required to make up one complete switch.





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Soo carmen liked them, because they are much cleaner and easier to use than a grease gun. Their foreman liked the discs, because lubrication now gets done so much faster. And the Soo's Chief Mechanical Officer, T. F. "Tom" Kearney, liked them because, "I can now be certain that the men are using them. It's much easier to ask a man to do a clean job than make him do a dirty job."

All of these advantages—on top of the excellent lubrication job the discs have done—have made Shell Centerplate Lubricant discs a stock item for the Soo Line.

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Four of these one-ounce discs (which Soo carmen call "buckwheats") are placed in each centerplate. Each disc contains a measured amount of molybdenum disulfide within a wax-polymer binder. The centerplate gets a controlled, correct lubrication, with no slopover or squeezeout.

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RAILWAY AGE

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supporting
ASTRO

Inside

LUTHER MILLER

THEN (1959) AND NOW

Editors find it as hard as anyone else to resist the temptation to say, "I told you so." But it is not in any spirit of self-congratulation that we record the following sequence of events.

Jan. 5, 1959: Railway Age published a cover story entitled, "The Case for Government Assistance," a plea for government aid in coping with a passenger deficit problem that the government itself, by permitting competitive modes to swill freely from the public trough, helped to create. In a thinly disguised plea for subsidies, Railway Age asserted: "Railroads must re-examine traditional views on government aid to keep pace with social change." The plea was not sufficiently thinly disguised for some western railroads. Illinois Central was among those roads that accused Railway Age of espousing the cause of socialism.

Feb. 2, 1959: Bowing to pressure, Railway Age printed another cover story, summarizing the opposing point of view: "Subsidy is a point of no return. Inevitably, railroads would drift into nationalization."

Dec. 7, 1959: Eastern roads endorsed aid to suburban service, but the president of the Association of Western Railways declared: "The Chicago commuter roads are still opposed to subsidy in any form of transportation."

April 12, 1971: This week's Railway Age reports (page 22) that Illinois Central is proudly taking delivery of 130 new double-deck commuter cars, two-thirds financed by the Federal government—and also (p. 8) that most passenger roads are lining up to turn their intercity service over to a quasi-government corporation.

HOW COSTLY THE TIME LAG?

Suppose railroads had been able to achieve a unified stance on the passenger problem a decade ago? Railpax would have come into being earlier, with savings of literally billions of dollars. Commuter aid would surely have come faster. One wonders if the Penn Central would be in bankruptcy today —with all the problems its reorganization means for all railroads—had it been able to achieve an earlier solution to its staggering passenger losses.

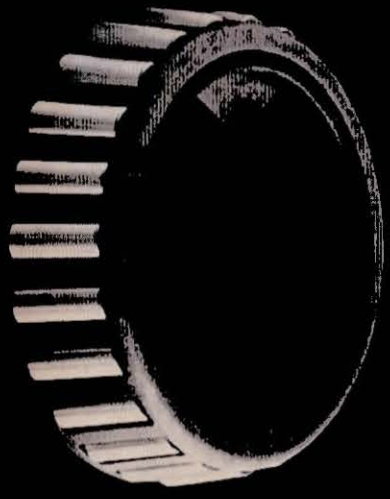
Today, railroads have not only agreed on an approach to the passenger problem; they have also, by endorsing the ASTRO recommendations, reached unity—at least on paper—on what it will take to preserve and protect freight service.

But ASTRO stands little chance if all railroads (including the relatively untroubled ones) do not fight for it harder than some roads, 12 years ago, were willing to fight for a solution to problems which were not yet—not quite yet—on their own doorsteps.

P.S. Illinois Central, yesterday's laggard, is one of today's leaders in the ASTRO fight—a good omen, surely.

BART cars ride on Brenco Bearings.

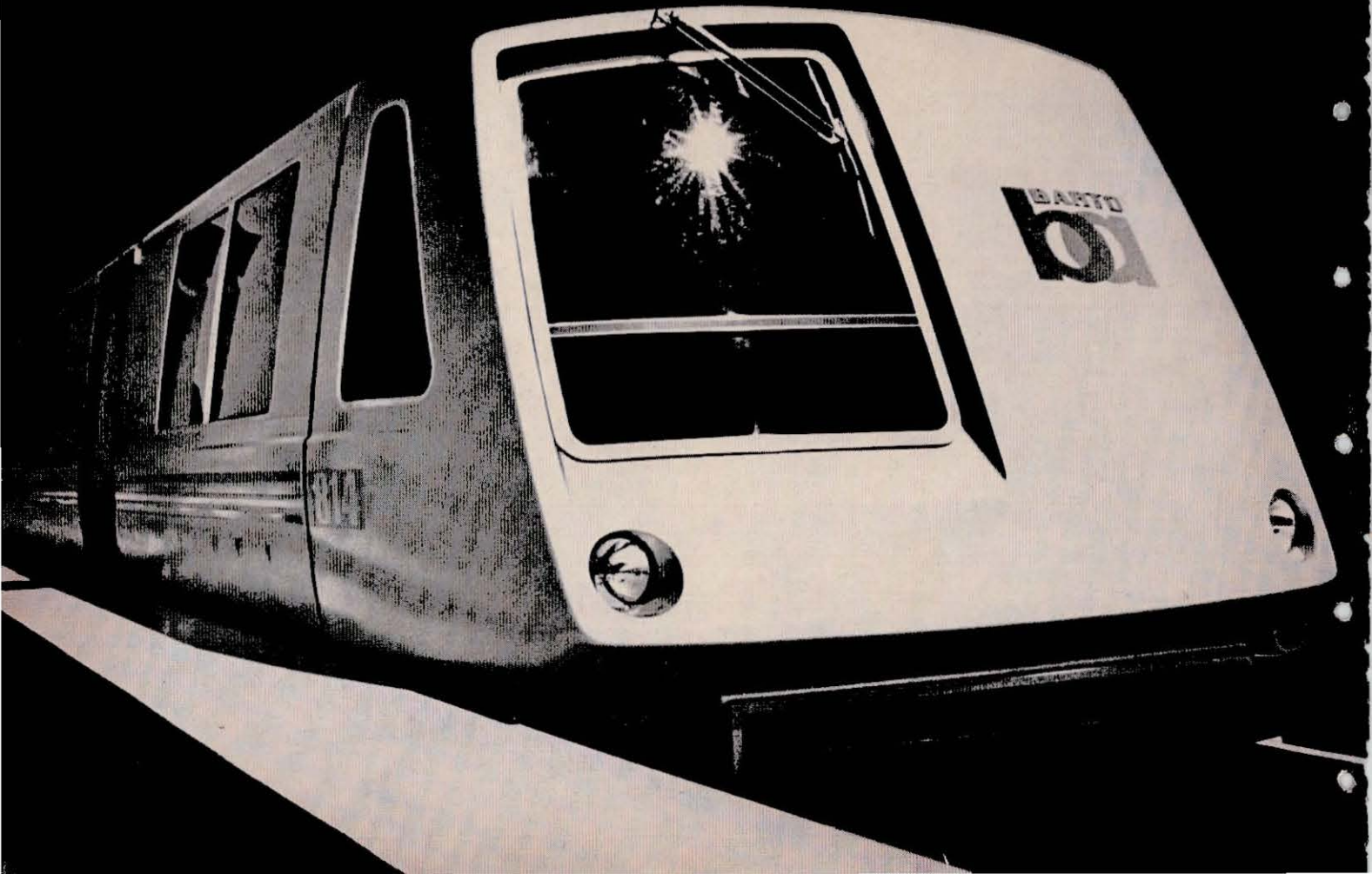
BART, San Francisco Bay Area Transportation, is more than a rapid transit. It is a transportation system that will open up employment and educational opportunities to underprivileged communities by providing greater mobility for citizens of isolated areas. BART cars are the most advanced rapid transit cars in the world... light, high-speed, low-maintenance... built by Rohr Corporation with Rockwell trucks and using the most modern tapered roller bearings available today... BRENCO.



Brenco Incorporated, Petersburg, Virginia.

BRENCO Tapered Roller Bearings

BRENCO



RAILWAY AGE

March 29, 1971

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COVER

As soon as it was able to roll on its own wheels, Illinois Central commuter car 1502 was moved outside St. Louis Car's Hall Street plant for this special Railway Age photo by free-lance photographer Elmer O. Konradi.

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Short and Significant

TRANSIT

BOEING EYES THE TRANSIT MARKET

After months of research, the Boeing Co. is ready to make a strong bid for a share of the burgeoning transit market. Boeing is starting out in a modest way, with a contract, awarded to its Vertol Division by the U.S. Department of Transportation, to prepare a guideline specification for commuter cars. But the company is reported to be ready to take a bigger plunge by bidding on several upcoming commuter- and transit-car orders. Boeing is also interested in the "people-mover" market, and will work in this area with Alden Self-Transit Systems Corp. of Bedford, Mass., developer of a system of automatic transportation called "staRRcar."

BART GETS NEW GRANT FROM DOT

The Federal government's investment in the Bay Area Rapid Transit system is now $145 million, slightly more than 10% of the total cost of the 75-mile rail network now nearing completion. The Department of Transportation's latest grant to BART was $40 million to assist in completing construction of the system and in the purchase of 250 cars now being built by the Rohr Corp.

DULLES TACV PLAN DIES IN CONGRESS

DOT's plan to build a 13.5-mile, $22-million TACV line from Dulles Airport to a parking lot seven miles from downtown Washington was killed April 2 by the House Transportation Appropriations Subcommittee. The TACV line was to have opened in time for the first U.S. International Transportation Exposition at Dulles next year. Rep. Joel T. Broyhill (R.-Va.) said construction of the TACV system would have "injured our chance to get a more serviceable, useful [rail rapid] service."

THE INDUSTRY

C&O/B&O EARNINGS RISE SHARPLY

Chesapeake & Ohio/Baltimore & Ohio were again first with a quarterly-earnings statement—and the news was bullish. The affiliated roads reported consolidated earnings of $8.8 million for the first three months of 1971, compared with $3.5 million for the corresponding period last year. Revenues totaled $243.4 million this year, compared with $213.2 million in 1971.

C&O, N&W ABANDON MERGER PLAN

As expected, Chesapeake & Ohio and Norfolk & Western have called off their plan for merger. In a joint statement, presidents of the two companies said the decision stemmed from "drastic changes of the Eastern railroad picture since the plan of merger was entered into in 1965." Fear that the merged company would be saddled with one or more troubled Eastern railroads was a major factor in the decision to call it quits.

PC SEEKS TO LEASE 1,251 P-S CARS

The ink was barely dry on a lease contract it signed last month to get 1,000 box cars from a subsidiary of ACF Industries when Penn Central petitioned the court for approval of another leasing plan—for 1,251 covered hoppers—with Pullman-Standard as the builder. The 4,785-cu-ft cars —1,000 for grain service, 200 for dry bulk chemicals, and 51 for pelletized materials—are valued at $22.3 million. Approval of the plan, said PC President William H. Moore, would bring the covered hoppers on line starting in August.

PENN CENTRAL: REVENUES UP, DEFICIT DOWN

Penn Central's railway operating revenues rose to $282.6 million in the first two months of 1971, from $253.9 million in the corresponding 1970 period. The bankrupt carrier's net loss for the first two months of this year was $66.3 million. The net loss reported by PC's former management for the first two months last year was $73.1 million. In submitting the report to the Federal District Court in Philadelphia, trustees warned that "any comparison is misleading since the 1970 figures appear to have reflected a corporate policy at that time of putting the best conceivable face on the facts."

RAILPAX: ROCK ISLAND WILL GO IT ALONE

Railpax contracts were ready for signing last week and at least 20 of the 22 roads eligible for membership in the National Railroad Passenger Corp. appeared to be ready to join. At press-time, the only carrier which seemed to be definitely out of Railpax was the Rock Island. RI said it would be cheaper to maintain its remaining two pairs of trains—Chicago-Peoria and Chicago-Rock Island—than to pay Railpax's entry fee. Southern was still on the undecided list.

A day in the life of a CTA car.

6:05 a.m.

Steelworkers begin arriving for the early shift on Chicago's south side. Nickel stainless steel gives the Chicago Transit Authority's newest fleet of cars enough brawn to serve riders dependably for years to come.

7:50 a.m.

The white-collar migration to the Loop surges and peaks. Cars carrying up to 150 passengers cannot compromise on safety—and the stainless combination of high strength, light weight and corrosion resistance is unique in its price range.

11:20 a.m.

Shoppers descend on stores like paratroop divisions. Bargain hunters in the railroad industry appreciate the long-range savings in power costs offered by lightweight stainless steel cars.

2:45 p.m.

School's out. Stainless interiors withstand the hard knocks of horseplay longer and stronger than other materials. Stainless steel never needs painting or repainting. Lipstick and crayon scribbles come painlessly off stainless.

7:30 p.m.

Curtain time at the movies, and the good bleacher seats at Comiskey Park are filling up. Over 100,000 Chicagoans ride stainless CTA cars to work and play every day.

CTA's 150 new stainless steel transit cars will give Chicago safe, comfortable, dependable, economical service for decades. Shouldn't your city keep up with Chicago?

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RAILWAY AGE
NEWS

ASTRO: All goes (almost) as planned at the launching

There was Sen. Vance Hartke (D.-Ind.), the Senate Transportation Subcommittee chairman, looking like a slightly angry owl; there was AAR President Stephen Ailes, shaking hands and acting like the Commerce Committee hearing room was a county courthouse in West Virginia; there was ASTRO General Counsel George Smathers, the polished pol holding reunion, and there were the spectators, a railroad crowd for the most part, all slightly anxious and ready to cheer the home team.

The railroaders need not have worried. The occasion was the first testimony to Congress on railroad problems, and like all hearings it was a set piece battle, carefully rehearsed. The real action will come later, when the committee takes up concrete legislation.

True, the day before, on March 29, Sen. Lee Metcalf (D.-Mont.) had loosed a shrill blast at ASTRO, calling it an "expensive lobbying campaign" to persuade Congress to subsidize rails to the tune of $36 billion. Instead of an acronym for America's Sound Transportation Review Organization, he suggested "CASTRO"—for "Congressional Action for a Slick Transportation Rip Off."

Next morning, after lights had burned late, AAR President Ailes answered Metcalf.

"We are, indeed, doing everything we possibly can, as Senator Metcalf indicates, to make certain the public fully understands the critical problems besetting this country's railroads," said Ailes calmly. Less than one-fifth of the $36 billion rails need in the next 11 years, said Ailes, would have to come from government sources. "The government's share . . . would be dwarfed in comparison with the billions of dollars it pours annually into helping the railroads' competitors."

Actually, AAR officials had been expecting an attack on ASTRO for some time. Such attacks are the normal currency of political strife in Washington. Indeed, they felt the timing of the Metcalf charges enabled the industry to state its case with added effect.

Thus it was with some measure of drama that industry leaders trooped to the Hill to present their case.

But first on the witness stand was Sen. Robert Taft, Jr. (R.-Ohio). Earlier in the month, he introduced two bills to revitalize what he called the nation's "struggling" rails. The first bill (S. 1092) would (1) set up a precedure whereby rails could discontinue service on 90 days notice to DOT, except where DOT declared the service essential to the national or regional economy and (2) strip ICC of ratemaking authority. Rails, under the proposal, singly but not jointly could set their own rates. Rebates and discriminatory tariffs are forbidden. His second bill (S. 1093) amends the Railway Labor Act to enable carriers to change workrules if labor protective provisions are observed and 50% of the savings realized from changed workrules are shared with employees.

> A blast not on the program (from Montana's Metcalf) marked, but failed to mar, the proceedings.

Next came AAR President Ailes who introduced Senator Smathers for a fuller discussion of the ASTRO plan.

The Smathers testimony essentially duplicated the argument he has carried around the country in recent months, namely that the U.S. railway system is in "very real danger" of collapse and that the nation could not possibly endure with its failure. He outlined the ASTRO plan, which he said would cost the government about $600 million a year, which in turn would enable the industry to fulfill its capital needs of $3.3 billion annually.

"The basic problem is that railroads have no money," Smathers said. Attributing this to an "outdated regulatory system geared to a transportation monopoly that has existed for decades" and "government spending programs that have treated other modes more favorably than railroads," Smathers asserted that "until railroads are placed on a more equal footing with other forms of transportation, they simply cannot overcome their financial problems."

As examples of the kind of government aid rails need, Smathers ticked off the ASTRO recommendations, including a railroad trust fund of $400 million for road improvements, with carriers paying a user tax into the fund; loan guarantees and restoration of the investment tax credit to encourage plant modernization and equipment acquisition; relief from state and local taxation on rail property; direct federal loans to financially weak roads for 20% down payments on equipment purchases; a federally-aided quasi-public corporation to operate an emergency freight car fleet, allocation of Highway Trust Fund monies for grade crossing improvements, and an expanded federal railroad research program.

In all, Smathers read from 36 pages of testimony. It was an appearance that generally impressed rail observers in the crowded hearing room; but if it pleased Senator Hartke, he gave little indication of it.

"I don't want you to anticipate that we're going to move with the speed that we did on the emergency legislation [providing $125 million in loan guarantees to bankrupt railroads] unless somebody else goes broke in the meantime," he told Smathers.

For his part, Sen. Hartke suggested the creation of a newer version of the Reconstruction Finance Corp., as a means to help all financially ailing industries. The idea, which also has been broached by Sen. Jacob Javits (R-N.Y.) and Federal Reserve Chairman Arthur Burns, drew support from Smathers. "I personally believe that the reinstitution [of an RFC] could be very beneficial, not only to the transportation industry, but also to the Lockheeds and the Boeings and all the others," said Smathers.

THINKING ACI SAVINGS?

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Crew-consist laws: A running gunfight

Defeat in one state, Indiana, was a heartbreaker—but it isn't stopping rail management from trying to plug the financial drain caused by state crew-consist laws.

The current campaign approaches the problem from two sides—legal and financial. Repeal of the remaining crew laws is the primary goal. At the same time and in certain areas, railroads are proposing a surcharge on traffic originating or terminating in crew-law territory.

Repeal efforts, recent ones, have had little success. Last November, Arkansas voters refused to wipe the 1907 crew law from the books; and just a few weeks ago, repeal failed in the Indiana legislature, by the narrowest of margins.

Meanwhile, however, repeal efforts are moving ahead in at least two other states. A repeal proposal was introduced in the Ohio legislature late in March; and Wisconsin railroads are known to be working toward a similar action. In New York, bills are pending in both houses of the legislature, but there's some question as to whether any action will be taken this year.

On the second side of the question—the proposal to apply surcharges in crew-law states—the driving force has been the Traffic Executive Association-Eastern Railroads. TEA's plan would cover New York, Ohio and Indiana and would attempt to make up—through a surcharge estimated at $10 per car and $5 per trailer—the added costs incurred through application of the laws. That added expense, for the three states, has been figured at about $40 million a year. There is, of course, opposition to the proposal, and TEA has set April 13 for a public hearing in New York.

No specific plans for similar action have been laid outside of eastern territory—but it's reported that Arkansas railroads have given approval-in-principle to a surcharge. The cost of applying Arkansas' law has been pegged at about $7 million a year.

(One Wisconsin road, Soo Line, is taking still another route to promote repeal. If the legislature acts, Soo says, it will drop its current efforts to abandon a 22-mile branch line.)

In defeat in Indiana, railroads could at least take comfort in the fact that they came close—closer, one spokesman noted, than at any time since 1953. With solid support from Indiana shippers, the bill squeezed through the state Senate. Chances for House passage looked good. When the vote came, however, repeal fell just short on an intial tally. Vote switches produced a final score of 54-44 against repeal.

During the legislative fight, railroad spokesmen made it clear that unless the law was repealed, the surcharge would be pushed. And so the Indiana railroads now face the somewhat gloomy prospect of finding shippers opposing the surcharge with as much zeal as they supported repeal.

In the aftermath of defeat, nobody was ready to blame any particular factor for the loss. There was some indication, however, that despite their best efforts, repeal backers were unable to convince enough people that job cutbacks would be through attrition and not through wholesale firings and layoffs.

Across the state line in Ohio, the situation looks somewhat brighter. Railroads have tried for repeal before, in the courts and in the legislature (1965 and 1967 sessions), and have failed. This time around, though, there are indications that legislative support is greater than it was when the previous efforts were made.

It should be noted, too, that during the 1960s, railroads made substantial progress all across the country in getting crew laws repealed or reduced in application. Successes were scored in Arizona, California, Mississippi, Nebraska, Nevada, New York (though there a section covering use of firemen was retained), North Dakota, Oregon, Texas and Washington.

Stafford: It's time for "drastic" action

ICC Chairman George M. Stafford has revealed that his agency is studying its own package of proposals to alleviate rail problems.

"The time has obviously come to consider some pretty drastic measures if essential rail services are to be preserved," said Chairman Stafford.

The "drastic" measures, indicated the ICC Chairman, involved:

—Rate restructuring. Citing Penn Central Trustee Jervis Langdon's suggestion that Congress should condemn any rate below the cost of providing the service, Stafford said he agreed that such rates were "appalling." He said where they are published voluntarily by carriers, they should be "rooted out of the tariffs." If below-cost rates are held down by state agencies, he said corrective action would be taken by ICC at a carrier's request. "If the present laws are insufficient to accomplish this end, then I agree they should be changed," asserted Stafford.

(With respect to below-cost rates,

DOT Under Secretary James M. Beggs told the House Transportation Subcommittee on March 11 that as much as 40% of rail tonnage moves under noncompensatory rates. He said sand and gravel traffic, for instance, produced a rail loss last year of $20 million. Beggs called for an overhaul of the entire rail rate structure and suggested ICC adopt long-term variable cost in most cases as the floor for minimum rate levels).

—Abandonment of excess capacity. Stafford said ICC "will have to do better in the future" to expedite abandonment applications. He said new legislation may be needed. One proposal under study at ICC, he indicated, would institute a formal review every two years of all rail trackage. After a finding by ICC as to what parts of the system were essential, it would be left to rails to determine whether they wished to continue lines not found essential. Another proposal being studied, he said, was Congressional authority for ICC to require rails to realign operations, share facilities, and to abandon unneeded service.

He said he hoped rails would come forth with ideas for joint operations which might result in financial savings for them, and pledged ICC cooperation in such proceedings.

—Labor agreements. Although disclaiming responsibility for labor-management relations, Chairman Stafford said ICC may soon commence a study of "possibly unproductive labor costs" in mergers already effected. He said ICC might then revise standard labor-protective conditions it heretofore imposed in merger and abandonment cases.

Another marcher in fare-hike parade

For Illinois Central's thousands of Chicago-area commuters, the daily trip is going to be a lot more comfortable—and, apparently, a little more expensive. A fleet of new, double-deck cars will soon go into service (see page 22); and, the Illinois Commerce Commission willing, a 7% increase in all fares will soon go into effect. IC last had a fare boost in June 1970—but despite that increase, commuter service ran up a '70 deficit of close to $300,000. And, IC says, "substantial increases in wage rates" also have to be taken into account. IC thus becomes the fourth major Chicago commuter road to seek an increase in fares. The others: Chicago & North Western, Burlington Northern, Milwaukee Road. Thus far, the state commission has not approved any of the proposals.

Lines on Labor

GUS WELTY

THE LAW IS THE LAW IS . . . ?

Both the client and the lawyer were upset—the client because he couldn't get a straight answer to a simple question, the lawyer because he couldn't give one. "If we were dealing with law alone," the lawyer said, "I could tell you 'Yes' or 'No' and that would be that. But," he added with a frown, "under the circumstances I can only tell you that 'Taking into account existing and sometimes conflicting interpretations, and considering the apparent trends in judicial thinking in both lower and higher courts, and accepting what appears to be a growing tendency to interpret law on sociollogical bases, it seems to me that . . . ' " His voice trailed off and the client, a merciful man, quickly changed the subject. That client/lawyer discussion was not concerned with railroads. But it could have been—because the Railway Labor Act is growing a judicial crust so thick and so varied as to make it all the more necessary that Congress take a fresh look at (1) what that preceding Congress wrought in 1926, and (2) everything that's happened to it since, particularly recently.

ANOTHER COURT, ANOTHER HEARING, ANOTHER OPINION

The latest example of that "crust" is a ruling by an appellate court which seems to permit selective strikes—*if* the selective action is part of a "good faith" effort to reach a national agreement. The ruling seems to suggest that railroads might lockout as a way of defending "the principles of national bargaining." And it seems to introduce a whole new approach to the exercise of economic strength—the "rotation of selective strikes." This, the court said, might reconcile the unions' "search for some economic pressure on the railroads to stimulate national bargaining, and the interest in avoiding vengeful harm to carriers without meaningful responsibility or capacity to affect the result."

THE PRESSURE MOUNTS—BUT WHAT'S TO HAPPEN NEXT?

In specific terms in the current case, the United Transportation Union apparently can't strike until May 6—taking into account the effective date of the order and a requirement that a two-week strike notice be given. In the meantime, a number of things might happen. UTU and the railroads could reach an agreement. The case could go to the Supreme Court. Congress could begin to consider the need for change in the Railway Labor Act (which, the appellate court said, "defers and delays but in the last analysis . . . doesn't deny a union's right to call a strike").

In this case, the court made much of the "good faith" issue—and, in fact, remanded the case to Federal district court for reappraisal of "the union's good faith in the light of either substantial evidence not previously available or developments as to tactics and methods following notice to the carriers of the strike call." But what, precisely, is "good faith"? What criteria for judging is the court to use? Would any two judges give "good faith" the same definition? Or would "good faith" be accorded the same stretch treatment as that suffered by the word "bargain," as in collective bargaining? A "bargain," the dictionary says, is "an agreement between parties settling what each shall give and take, or perform or receive, in a transaction."

Transit men cry "foul" as Nixon Administration cuts funds

The transit industry is hopping mad at the Nixon Administration. Industry leaders have flatly told President Nixon that the $400 million he proposes to obligate in mass-transit contract authority this fiscal year "ignores" and "completely defeats" the obligation concept in the 1970 Urban Mass Transportation Assistance Act.

Anything less than $600 million, the amount Congress approved for 1971 contract obligations, would be "entirely unacceptable," said the transit leaders.

These were strong words, and they were strongly echoed in another letter to Budget Director George P. Schultz by 28 U.S. Senators. But the words were, perhaps, not strong enough. It has been learned that the Administration will stick to its $400-million ceiling.

To get the greatest possible publicity mileage from the authority that is available, the DOT's Urban Mass Transportation Administration will announce a series of long-pending grants. The first of these, a $40-million grant to BART, was announced March 27. Others will follow swiftly.

Thus, the Administration once again appears to be resorting to public relations rather than exhibiting a gut commitment to mass transit.

This PR oversell in part lay behind the public protest addressed to President Nixon by Robert Sloan, executive vice president of the American Transit Association; Patrick Healy, vice president of the National League of Cities; John Gunther, executive director of the U.S. Conference of Mayors; Robert Coultas, executive vice president of the Institute for Rapid Transit; and Nils A. Lennartson, president of the Railway Progress Institute.

It seems to transit men that they were led down a primrose path by the Administration on the matter of obligational authority.

This authority is a funding device whereby the government in effect issues a promissory note to transit authorities applying for Federal aid. The "note" or contract obligation promises to pay two-thirds of the cost of a capital facility. Actual payment comes in succeeding fiscal years, as funding for the program increases to $3.1 billion by 1975 and to at least $10 billion by 1982.

The attractiveness of this concept is that transit authorities, secure in the availability of Federal aid, can raise local matching funds, make long-term plans and open bidding on actual projects.

The Administration last year strongly backed the 1970 Act. It even asked Congress for obligation authority during fiscal 1971 of $850 million. Indeed, it sounded at times as if it would obligate this year all $3.1 billion promised by Congress to fund the program by 1975. In all this the transit industry cooperated, in hopes that the new legislation would begin to dent the industry's estimated $34 billion in capital needs during the 1970s.

In anticipation of Federal aid under the 1970 Act, transit authorities placed over $2.2 billion of applications for grants with UMTA. The great majority of these will now have to wait until fiscal years 1973, 1974 and 1975.

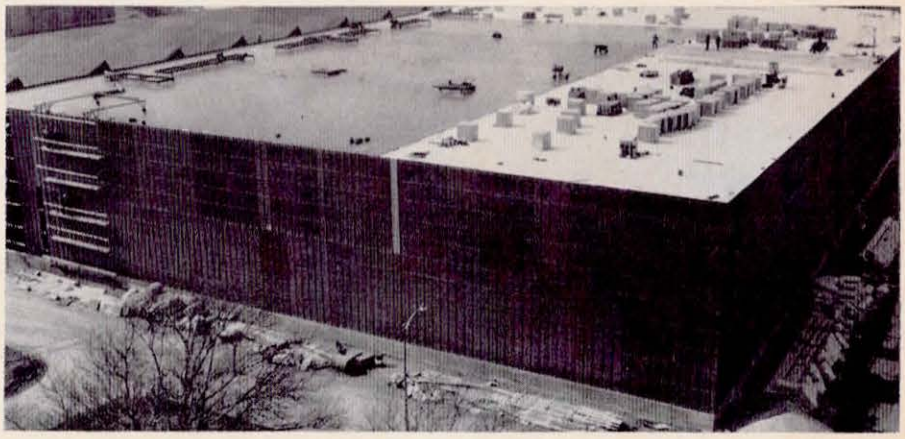
UMTA seems to have been simply too enthusiastic about the massive commitment the Act makes to mass transit. In its enthusiasm, it got carried away and thought DOT Secretary John A. Volpe could sell the entire program to the White House. UMTA now is sadder and wiser about the powers of the President's Office of Management and Budget.

The round figures in dispute—$400 million and $600 million—are actually somewhat illusory. Not all this money, in either case, could go for the capital facility grants which transit authorities are most interested in. The $400 million on which the Administration stands pat actually contains only $341.7 million for capital grants or loans—not an awful lot more than the $214 million appropriated for mass transit in fiscal 1970. The difference between $341.7 million and the $400 million consists of grants for technical studies, research and development, and demonstrations.

Similarly, of the $600 million in contract obligational authority requested in the President's fiscal 1972 budget, $497 million will go for capital facilities grants.

Thus the total capital grants and loans UMTA will obligate in fiscal 1971 and 1972 will total about $838.7 million. About four-fifths of this, or $672 million, will go to rapid transit systems.

It is on this two-year total that UMTA Administrator Carlos Villarreal pleads for patience from the industry.



GE car facility nears completion

General Electric's new commuter/transit-car assembly facility at Erie, Pa. (see photo) will be ready to start assembly operations in mid-1971, says Bryce W. Wyman, GE vice president and general manager of the Transportation Systems Division.

Cornerstone for the $14-million plant was laid by Pennsylvania Gov. Milton J. Shapp. "The next great spurt in our national economy will come from the rebuilding of our cities and the rapid transit systems that will be needed to provide a better living for American families," said Shapp. He noted that GE's entry into the car-building business will eventually add up to 1,200 GE jobs at Erie.

George L. DeMent, CTA chief, dies

George L. DeMent, one of the nation's most prominent figures in the urban mass transportation field, died March 13. DeMent, Chicago Transit Authority board charman, president of the American Transit Association and a past president of the Institute for Rapid Transit (1965-67), was instrumental in the development of Chicago's subway system and in the city's pioneering of the expressway median-strip concept for location of rapid-transit lines.

Succeeding DeMent as president of ATA is Lucien L'Allier, head of the Montreal Metro.

Revenue sharing: How it would work

President Nixon's special revenue-sharing program for transportation would give back $2.56 billion in Federal tax collections to states and cities for expenditure on their transportation needs in fiscal year 1972.

While given little chance of quick passage, the plan is regarded as significant in its long-range implications for transportation planning at the highest levels of government.

The plan would combine 23 existing Federal grant programs into two sums of money:

—$525 million earmarked solely for capital investment in mass transit.

—$2.041 billion for any variety of transportation services.

The revenue-sharing plan does not increase Federal spending already earmarked for highway, aviation, or mass transit needs in fiscal 1972. It simply lumps together these existing 1972 programs:

Mass Transit:	$525 million
Airport:	$220 million
Highway Safety:	$130 million
Highway Beautification:	$ 66 million
Federal Aid for Highways:	$1625 million
Total:	$2566 million

Funds would be allocated to states and cities without requirements for local matching funds, and without the usual Federal controls and restraints.

The revenue sharing plan would put the Urban Mass Transportation Administration out of the capital grant business altogether. UMTA would be left with about $80 million to spend for R&D, university research, and demonstrations.

Another transit plan for Chicago

The Chicago Area Transportation Study (CATS) has come up with a new five-year plan for the Chicago area which recommends, among other things, construction of new Chicago Transit Authority lines in addition to the Loop and downtown-distributor subways already planned. Over-all, the study proposes expenditure of $1 billion for capital improvements for public transportation. And, while it is strong on public transportation, it also reportedly leaves unchanged a several-years-old recommendation for construction of more freeways in the area.

Watching Washington

REID BEDDOW

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STATUTORY TAPE
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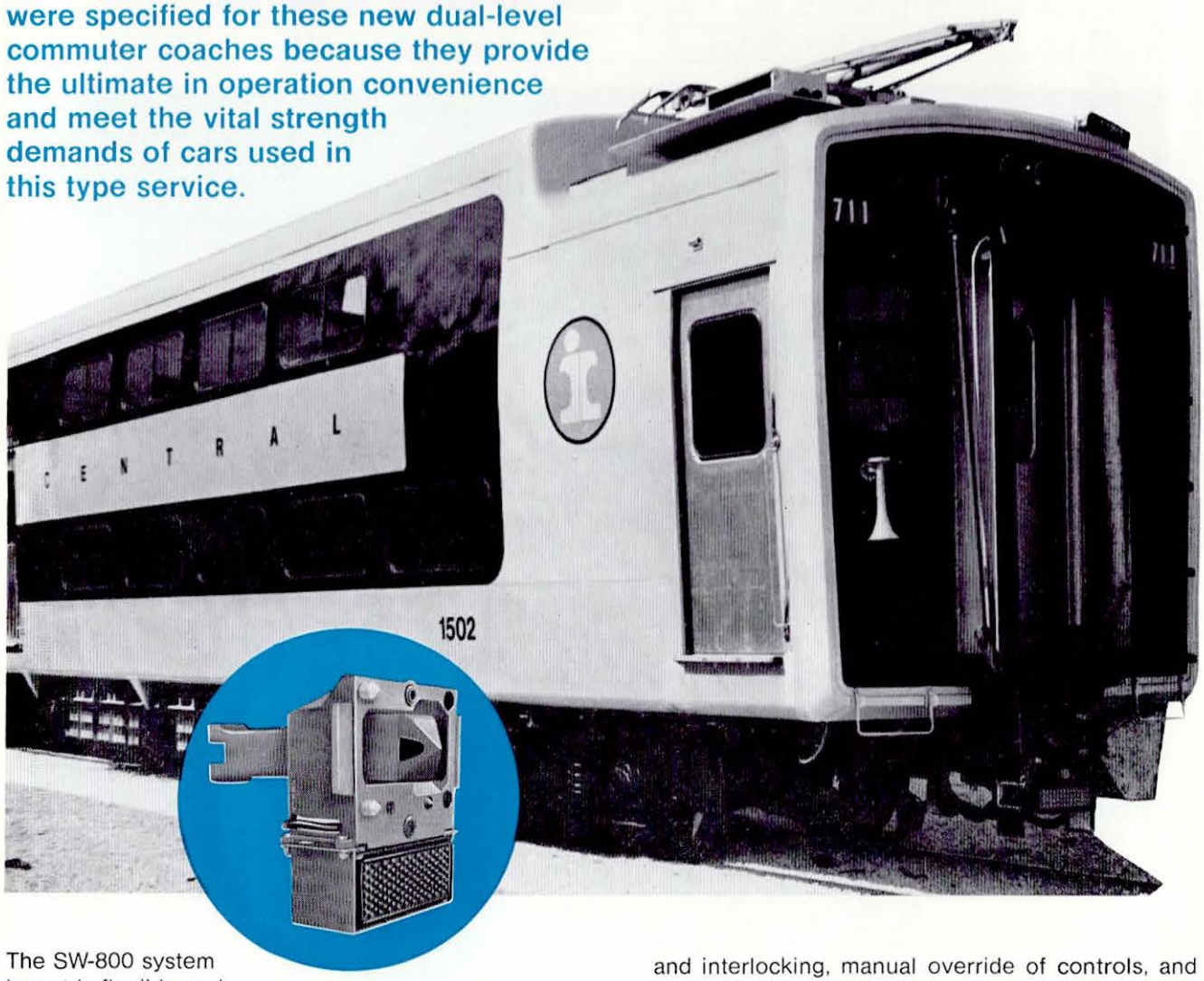

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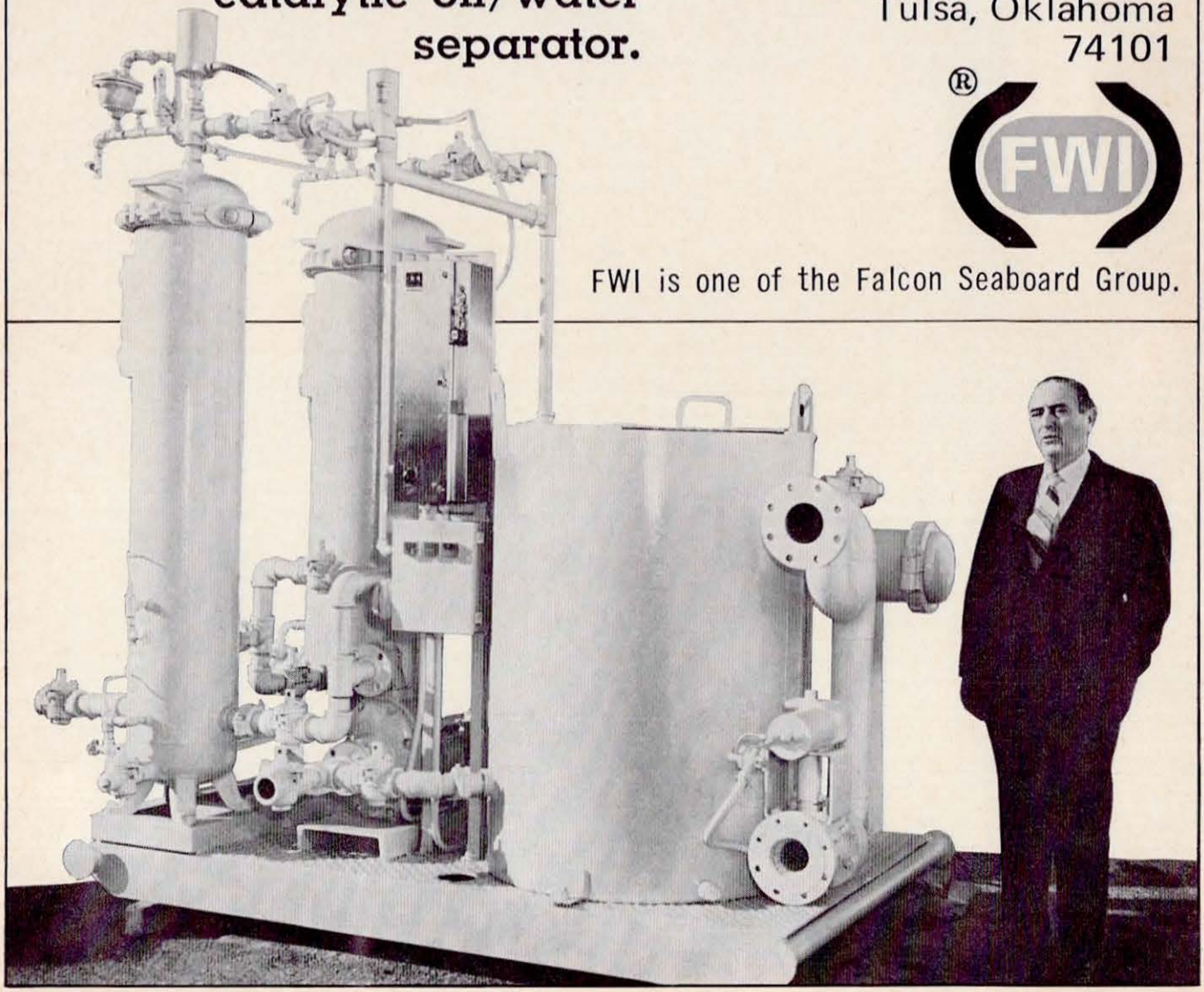

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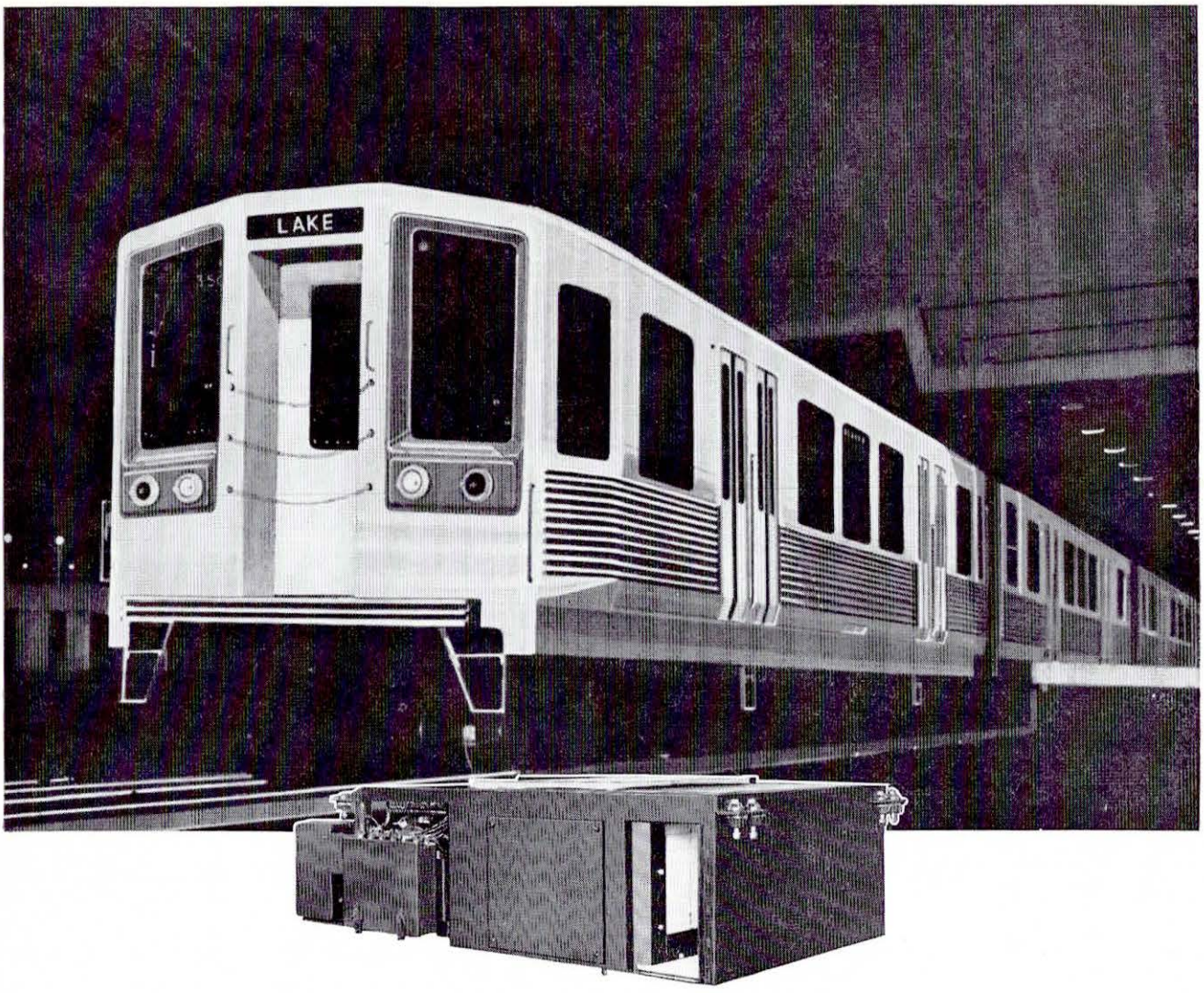

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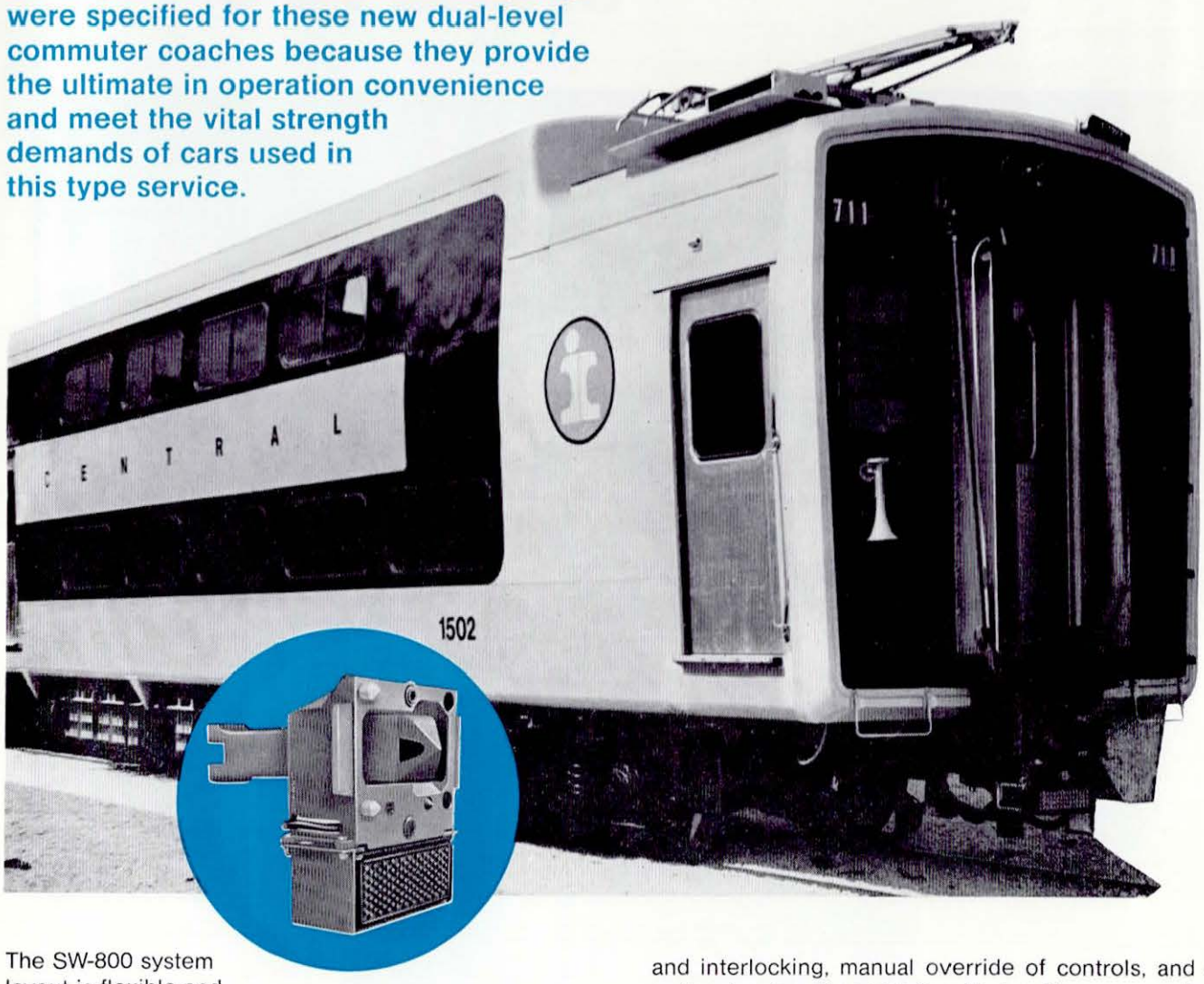

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CITIES IN TRANSIT

Will Houston opt for rail?

Can a road-minded city like Houston, Texas, whose 1990 plan shows 14 freeways radiating from a center city ringed by not one but two beltways, find happiness with rail rapid transit?

The question has been hanging around Houston city hall for a long time. Now, finally, there may be an answer. The city council has okayed a $796,000-project that will determine whether or not Houston's time for rapid transit has come.

There's no doubt what the city has in mind when it says rapid transit. Thomas B. Tyson, public service director and chairman of the mayor's transportation committee, says rapid transit means a mode of mass transport operating on separate right-of-way. But the precise mode, Tyson adds, will be decided only after need for rapid transit is determined.

The feasibility project, Tyson says, will name "performance specifications so the city can ask suppliers to make proposals on hardware they have that will meet the specifications.

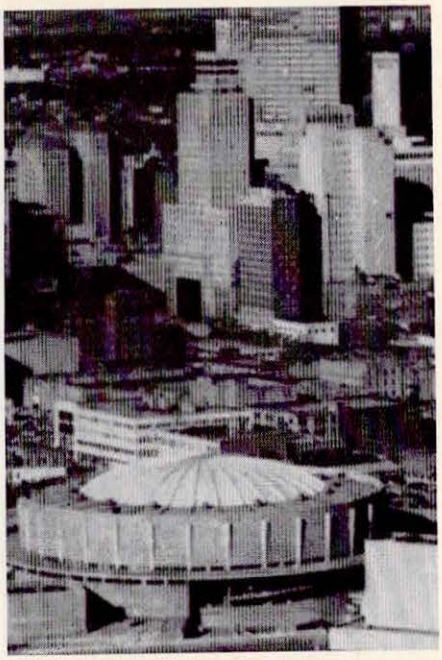
"We look for specifications for a system that will move a designated number of people per hour, at a specified speed, under definite comfort conditions and maintained at a certain schedule between vehicles. It could be anything so long as it does the job we want.

"The reason we don't want to come up with a particular piece of equipment at this time is that we want to retain the opportunity for selecting the most futuristic and best system available at the time we want to build."

● **Chance for rail mode.** Translated into Tyson's personal outlook, that means rail would be a good choice. "It is my personal opinion," Tyson says, "that there will be a need for rail mass transit as a major part of our system. Personally, I don't think any other system would be an acceptable alternate in terms of proven reliability to move large numbers of people."

And the Houston Post, in an editorial, says: "This growing city cannot continue to move more and more people at a ratio of one car per person. Those who argue Houston is too sprawling to use a highspeed system overlook two things: That population density is likely to double before any subway could be built; and that a sprawling city like Stockholm—built on 14 islands—has a highly efficient system that is clean and handsome as well."

The immediate problem is the attitude of thousands of Houstonians accustomed to a "climate that encourages year-round auto use," Tyson says. The city's advanced freeway system will compound the problem.



● **Six corridors already identified.** One thing the feasibility project won't have to do is find potential transit corridors. A study completed in November 1969 for the Houston-Galveston area council says six corridors are already clearly identified. The study says present freeways, streets and parking facilities of central Houston will be "substantially deficient by 1975 and *completely inadequate* by 1990 . . ." By 1990 the population of the Houston-Galveston region will have risen from 2.2 million to between four and five million, the study says.

Concluding that the ultimate aim and desirable result is a balanced transport system, the 1969 study says that in addition to moving ahead with freeways, the city should "augment and expand the public segment of the metropolitan transportation system through (1) early development of a grade-separated rapid transit system, and (2) expansion of express and local bus service coordinated with the rapid transit system."

The six corridors, the study says, will suffer severe weaknesses in highway capacity in 1975 and/or 1990. "At many of the test lines across the six corridors, the deficiencies are large, even after application of moderate improvements beyond those street and highway projects expected to be completed by 1975 and 1990."

● **The major traffic lanes.** As described in the study, the six major traffic lanes into central Houston are: Gulf corridor, southeast along Gulf Freeway (Interstate 45) to National Aeronautics and Space Administration and city of Galveston; East corridor, along East Freeway (Interstate 10); Eastex corridor, along Eastex Freeway (U.S. 59) to Houston Intercontinental Airport; North corridor, along North Freeway (Interstate 45); Katy corridor, west along Katy Freeway (Interstate 10); and West corridor, along Westheimer Road (Farm-to-Market route 1093), including part of Southwest Freeway (U.S. 59) west from downtown Houston.

The report concludes that the "most promising and likely solution to the most critical corridor deficiencies and to problems of access and circulation in downtown Houston is the development of a grade-separated transit system."

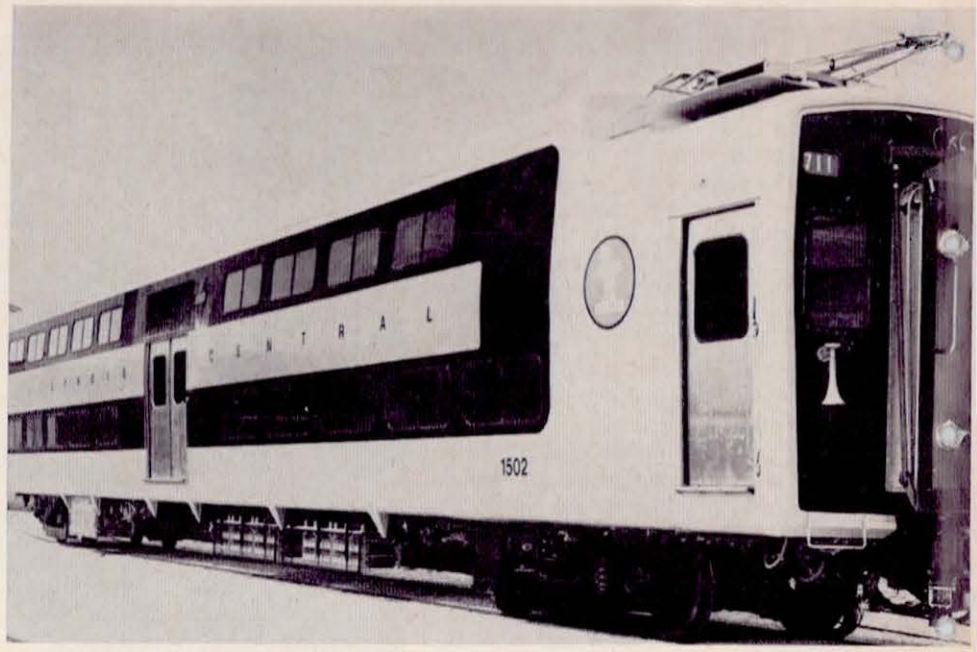
The new feasibility project will determine just how much weight the 1969-study conclusion—and the conclusions of Thomas Tyson—carry with the citizens of Houston.

"We want to answer as many questions as we can and consider as many ideas as we can," Tyson says. "We must provide what the public feels it needs."

● **The bus problem.** The project also will determine what immediate steps are needed to improve bus service now provided by the independent Rapid Transit Lines, Inc. After a solvent 1969 (a surprising $600,000 net), the company plunged toward the red in 1970 with a 5% drop in patronage. "We feel we're living on borrowed time," says Stanley H. Gates, Jr., Rapid Transit vice president and general manager. Less convinced than other transit figures that a grade-separated system will be feasible, Gates nonetheless says the feasibility project will be conducted free of preconceptions and will be "one of the purest you'll see."

The major part of the feasibility project will be handled by Voorhees and Associates, McLean, Va., at a cost of $580,000. In addition, there will be city costs for land surveys and extra staff that will bring the total project cost to $796,000. Of the total, the U.S. Department of Transportation is providing $516,000, and the city, $280,000. The project will take 18 months, Tyson says. ■

Here come the HIGHLINERS



130 new double-deck m-u cars now being delivered to IC demonstrate what

By ROBERT D. BARTLEY,
Associate Editor

When a Chicago newspaper conducted a survey last year to learn how 137,000 rail commuters rated the six major suburban services operating in the Chicago metropolitan area, Illinois Central was an "also ran," coming in well behind popular Burlington Northern and Chicago & North Western. But, that was last year.

If the same type of survey should be made, say, in mid-1972, IC's service would probably take a giant leap foward in the ratings. The reason for this likely gain in favor among its 42,000 commuters is that IC, at long last, is getting new suburban cars. A fleet of 130 brand new double-deckers, dubbed Highliners, costing about $40 million, is coming on-line now. By mid-summer, St. Louis Car Division of General Steel Industries, the builder, should be delivering cars at the rate of eight a month. The first of the "silver mist" gray cars highlighted in black and orange made its appearance last month, and deliveries will build up at a rapid rate, according to H. F. Davenport, vice president-passenger services, until they reach the eight-per-month level.

● **Public involvement.** IC's new equipment is one more tangible evidence of the growing recognition of the public's role in improving mass transportation. Although IC will be operating the cars on IC property, the road won't actually own them. Instead, they are being leased—from the Chicago South Suburban Mass Transit District, which takes in 11 communities south of Chicago. After all contract provisions are met the district will receive a Federal grant of $26.6 million, or two-thirds of the equipment cost, under the Urban Mass Transportation Assistance Act. The remaining one-third, about $13.3 million, will be put up by IC.

● **What the new cars offer.** The double-deck, electric m-u cars now coming off St. Louis Car's production line are climate-controlled. A pair of eight-ton air-conditioners, supplied by The Trane Co., is going into each car.

The cars have a 15-kw overhead heating system in each passenger compartment, as well as a pair of 7-kw floor systems with individual strip heaters, all controlled to give even heat distribution throughout. The heating system and controls for both air conditioning and heating are being supplied by Vapor Corp.

The rattan seats of the old cars are being replaced by attractive gold and orange vinyl-covered foam seats, contoured and slightly bucketed, from Coach and Car.

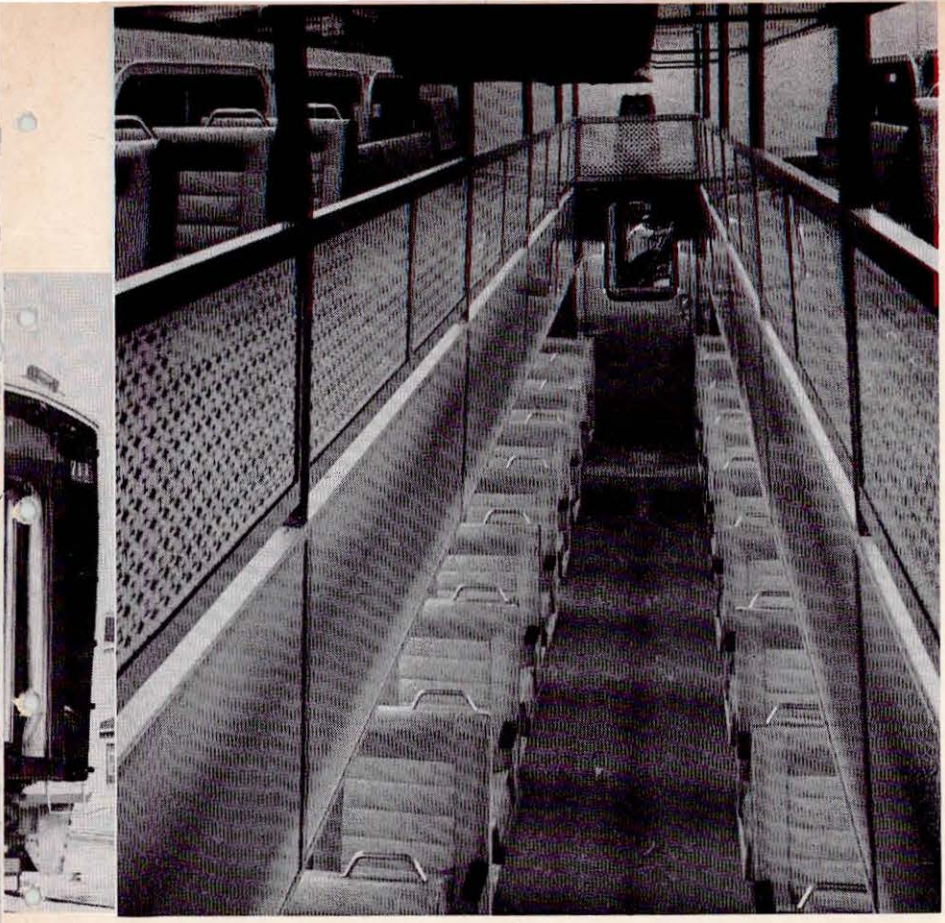
Complementing the air conditioning are double-panel, tinted safety glass windows, which will not only help keep things cooler but also keep the glare off the morning and evening newspaper.

There are a lot of other new things awaiting the IC commuter, too. There are stainless steel luggage racks. Melamine, fiberglass, aluminum and stainless steel (some of which were not even known when the existing fleet of cars was built) are being used extensively in the passenger compartments and the center vestibule not only for esthetic purposes but also to hold maintenance costs in line. Sheet rubber, another low-maintenance item, is used as floor covering.

● **Similar—but different.** In silhouette, the new IC cars look somewhat like the double-deckers now operating on the BN, C&NW, Rock Island and Milwaukee Road in Chicago, and on the Southern Pacific on the West Coast. They're 85 feet long; 10 feet, 5¾-inches wide; and rise 15-feet, 10-inches above the rail, not at all unlike other double-deckers. Car lightweight is approximately 134,000 pounds. A center vestibule serves as the main entry to the two passenger compartments.

The "center" vestibule is not really located on the centerline of the car; it is, in fact, 3-feet, 2⅛-inches back toward the A end, or rear, of the car. Seating capacity is 156, equally divided between the front and rear compartments.

The fact that the IC suburban system operates off a 1,500-volt d-c catenary system accounts for the shortest supply of seats being in the upper level of the front portion of the cars. The



Federal aid to mass transportation can accomplish.

pantograph that collects the current for each car is located in a roof offset at the front, measuring 1-foot, 10-inches deep and 10-feet, 4-9/16-inches long. This offset precludes the locating of any upper-level seats in this extreme forward area.

The roof offset is one of the distinguishing features of the IC car, making it distinctively different in appearance from other double-deckers. Another feature not found on other double-deckers is an additional side entry at one end which will speed boarding.

● **Underneath, maximum use of space.** It's the undercar area, though, that really puts the IC car in a design category all its own. "We knew from the beginning that we'd be pinched for space beneath the car," admits R. J. Chinn, IC's mechanical engineer, who also acted as engineer for the district and who brought the car along from the very early design stage. "We were determined to have a car with good riding qualities and still maintain sufficient carbody-to-truck clearance."

Suburban cars of all types, including those that are powered by diesel-electric locomotives, are very complicated. Pack all the electric traction equipment beneath a car such as the one IC and St. Louis Car have designed, and you can understand the complexity of the situation.

To create space for all the equipment without increasing the car's overall height, St. Louis Car engineers came up with an unusual underframe design. The 6-inch center sill is small by comparison with those on other double-deckers. But the sides are strong enough to handle over one-third of the load, so there is no sacrifice of strength or safety in the design. Although thinner, the body bolster is wider. As a matter of fact, it is about equal to two bolsters because it has both front and rear webs, one in front and one behind the springs. Crossbearers are larger, too, featuring 10-inch structural channels. So successful was the underframe design that 36-inch wheels could be used in the trucks, and not ones of 33-inch diameter as was feared at first.

● **Metro and Tokaido.** The G-70 outside journal truck, supplied by General Steel Industries' Castings Division, is very similar to the one designed for Penn Central's Metroliners. This double-equalized truck, however, is using Sumiride diaphragm secondary suspensions, not unlike those used on Japan's heralded Tokaido Line bullet trains.

The traction motors and associated gears and controls are being supplied by General Electric. The power rating for each axle is 160 hp and the acceleration rate will be 1.9 mph/sec. with a maximum operating speed of 75 mph, slightly higher than what was anticipated in an early design stage. The deceleration rate will be 2 mph/sec. in service application, 2.5 mph/sec. in emergency. IC expects to be able to run trains in as little as 44 minutes between the Loop and its farthest-out station, Richton Park, 29.33 miles.

The braking system, which is being supplied by New York Air Brake Co., is very similar to the electro-pneumatic air brake system in use on New Jersey DOT/Erie Lackawanna commuter cars now going into service (RA, Dec. 14, 1970, p. 22). The IC car's braking system goes one step farther by employing a hydraulic feature as well. Air goes to a special hydraulic booster which activates a hydraulic brake cylinder. Like the NJDOT/EL cars, IC's have an electric holding feature which permits a prompt recharge of the system after a brake application. IC and NYAB jointly tested the total system on an existing IC suburban car over the past two years. For the first time ever on suburban cars, NYAB reports, it is using "twistair" screw-type compressors.

Because space beneath the car was coming at a premium, IC's design engineers chose to locate the electric cabinets beneath the stairwells leading to the upper levels. The air conditioning units are self-contained and could be installed in the area directly above the center vestibule. A unique sealing system permits rapid removal of the units for servicing. Drains have rubber donut seals, while inflated rubber seals are being used between the fresh air and evaporator ductworks and the units themselves. The two air-conditioning units are arranged so that each serves one passenger compartment only.

IC and St. Louis Car engineers took special care in designing the motorman's cab on the first level. Vital controls—brake valve, controller, horn and so forth—were located in the identical places they are in the older cars. "Moving the controls to different locations in the cab would have had the same effect on the engineer that switching the brake and clutch locations on an automobile would have on a motorist," Chinn points out. Much more sophistication is going into the new cab. A Motorola radio system will enable enginemen to communicate with the riders, conductors, operators on nearby trains, base stations and towers along the system. It will be possible for the base stations and, of course, the conductors, to talk directly to the riders, too.

● **Doors that work.** Riders who are frequently frustrated by the cantankerousness of both outside and inner doors on the older cars, will find those on the new cars more cooperative. Each car's six outer doors will have constant-pressure, differential-type, electrically-controlled pneumatic door operators. The door tracks are equipped with heaters for cold weather.

Even-numbered cars will face north

on the north-south system, and all the odd-numbered ones south. St. Louis Car is shipping the odd and even-numbered cars properly oriented for the IC operation.

● **Fixed-plant changes made.** In preparation for the arrival of the new cars, IC has been doing quite a bit of work along the system. The cars' pantographs can reach a wire height of 24-feet, 8-inches, and the minimum height for safe operation is 16-feet, 6-inches, so catenary wires have been raised or lowered at 175 locations. At one location in the Loop area, tracks had to be lowered up to 6-inches because the wires couldn't be raised. A new electrical substation, costing $850,000, has been installed toward the end of the main line.

At 10 of the approximately 50 stations along the three-pronged system, platforms had to be shaved back to provide clearance for the new cars, which are about 12 feet longer than the older ones. These platforms—16 altogether, including one made of concrete—are located on curves. The most that had to be lopped off was 6 inches.

Out-of-date equipment notwithstanding, IC suburban service has long had a number of outstanding features which would likely be the envy of other commuter railroads. High-level platform loading and unloading are strong points. Electrification is another. While the 4.42-mile Blue Island branch and the 4.71-mile branch to South Chicago may have a total of 62 grade crossings between them, the mainline run to Richton has none. About 77% of IC patrons, therefore, don't encounter any grade crossings.

● **Fewer cars, higher capacity.** With the 270-car fleet now in service, IC operates 268 trains a day in and out of the Loop. A maximum of 10 cars per train are operated. With the new cars, which will operate in consists of two up to a maximum of six cars, IC has yet to determine the number of trains that will be operated. A train of six new cars, noted Davenport, will provide 96 more seats than today's 10-car train.

IC has played the role of innovator in many ways with its suburban service. Automatic fare collection gates are in use at all the Loop stations and at major ones elsewhere. While these gates did become inoperative at inopportune times when introduced in 1966 and still malfunction occasionally, they have become real assets. Flash tickets aren't needed and ticket collectors don't have to make the rounds of the cars throughout the run.

One thing that is distressing trustees and the IC is the fact that even after the 130 new cars appear on the scene, at least 40 of the older cars will have to be retained to meet passenger needs. After C&NW began adding new doubled-deckers to its suburban fleet, points out Davenport, "a 5% patronage growth per year was experienced, and we anticipate a similar growth upon delivery of our new fleet." And, while patronage at in-city stations is dropping —and such things as the addition of the Dan Ryan rapid-transit line by the Chicago Transit Authority, a new expressway extension and a fare increase last year have hurt ridership—the south suburbs are taking up the slack.

● **Mainline extension?** Another thing that could come along to put added strain on the fleets of new and old cars is extension of the IC suburban line about two miles to serve a new community, Park Forest South, which is expected to grow to a population of around 100,000. Also, there has been talk, off and on, of Chicagoland's third airport being located south. A feasibility study has been completed, advises Davenport, and it indicates 'that a dedicated, high-speed service is within the capability of Illinois Central, provided a source for capital is available."

Capital, or perhaps more appropriately the lack of it, is the big reason for the older cars remaining on the scene even though a new fleet is arriving.

Transit-district trustees feel at the moment that, before the IC considers extending its line to serve another community or anything else, all efforts should be directed toward complete phasing out of the old fleet. It would take another 20 to 25 new cars.

IC operating personnel are currently evaluating new zone schedules to determine their impact on suburban service. An IC/CTA validation system, which permits a patron to use IC service in between CTA services and not have to purchase two full CTA fares, is in experimental use. This privilege, which simply requires validation of the CTA transfer at IC's Loop terminal after getting off the train, has had surprisingly few takers. Only about 85 people a day are using it, Davenport reports.

An ambitious station improvement plan has been drawn up and partially implemented to also help IC provide what one officer promised several years ago would be "the finest commuter operation in the world someday."

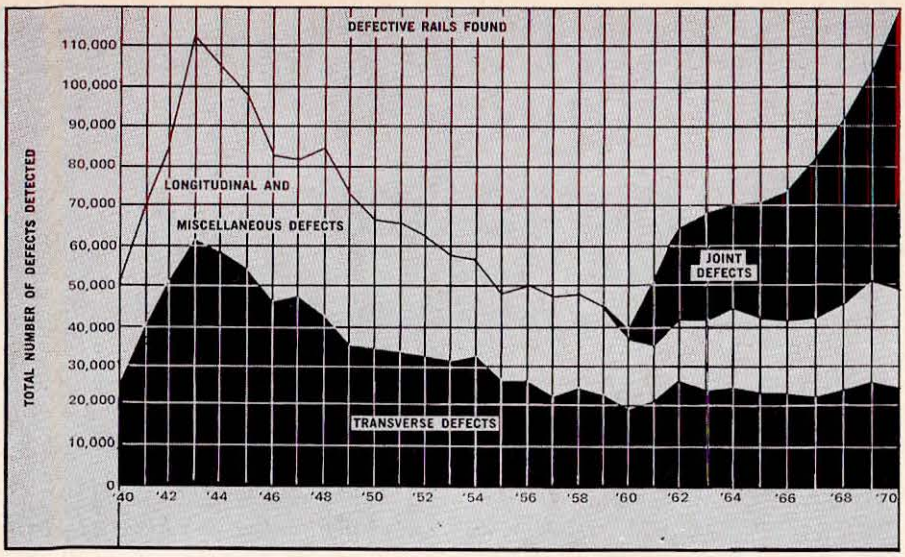
It will be the new car fleet, though, that will make this prediction come true, if it does. Extensive testing of the first cars is being conducted on IC property now. This will go on for several weeks before the introductory rides begin. Much of the testing has to be performed on-site because St. Louis Car does not have the unusual 1,500-volt direct current at its plant. ■

PROPULSION EQUIPMENT is examined at GE's Erie plant by H.F. Davenport, IC vice president-passenger services; E.S. Van Claxton, GE's general manager- transit systems; and R.J. Chinn, IC mechanical engineer.

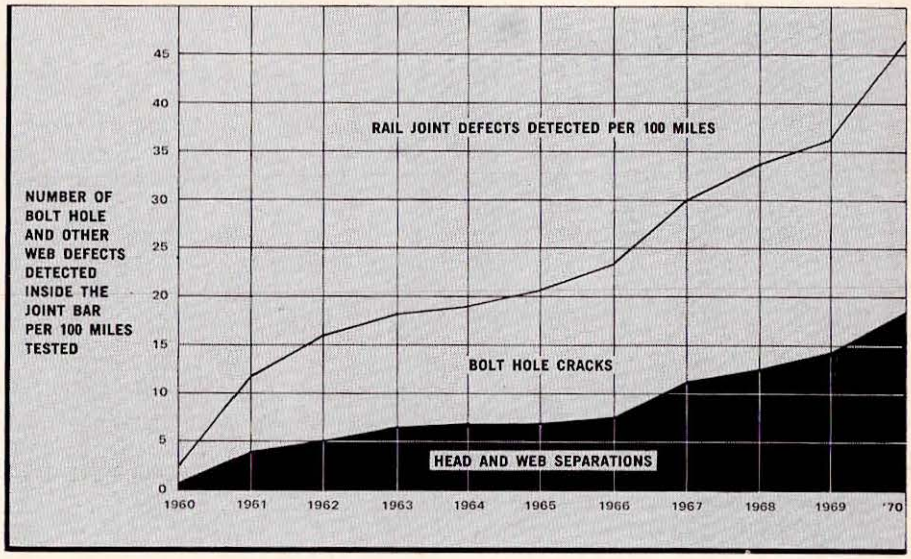
SECONDARY SUSPENSION system on the G-70 trucks features a rolling loop of air that provides smooth rides.

MAJOR COMPONENT SUPPLIERS

General Electric	Motors, gears, drives power and control
General Steel Industries	Trucks
New York Air Brake	Brakes
Trane	Air conditioning
Vapor	Air conditioning, heating and door controls
Trans-Lite	Lighting fixtures, lighting and air diffusers, signs
Adams & Westlake	Luggage racks, windows and sash
Dresser Industries	Couplers, draft gears
Coach and Car	Seats
SKF-Abex	Journal bearings
Edgewater	Wheels
Exide	Batteries
Barco	Speed sensors
Du Pont	Paint
O.M. Edwards	Doors
Motorola	Radio and public address system
U.S. Plywood	Plymetal panels



WHILE TRANSVERSE and miscellaneous defects found have remained about constant since 1960, joint defects have been going up sharply.



THE INCREASE in joint defects detected is attributed to the introduction of ultrasonic test equipment on Sperry cars about ten years ago.

Detected rail defects shoot up

Rise is caused by better detection, plus bigger wheel loads and total tonnage.

Internal defects developing in rails are sources of potential danger. For every defect found before it grows large enough to cause failure of the rail, a potential source of trouble is removed. When 119,509 hidden defects are found in a single year, the safety implications are obvious.

That's the number of defects discovered in 1970 by the fleet of 17 detector cars operated by Sperry Rail Service in testing 151,741 miles of track in the United States, Canada and Mexico. When this figure is compared with former years, and especially when these comparisons take into consideration the different types of defects making up the total, some striking situations come to light.

In discussing these figures before a meeting of the Mississippi Valley Maintenance of Way Club at St. Louis, Robert M. Owen, Sperry sales manager, noted that the defects uncovered in 1970 reached an all-time high. The previous high for total defects, he said, was recorded in 1943 when 111,831 defects were brought to light. The low since 1943 was reached in 1960 when the total was 39,037.

The sharp increase in detected defects since 1960 is ascribed to two basic factors:

—The dramatic and continuing increase in wheel and axle loadings and total tonnage.

—Improved defect detection efficiency as a result of the installation and continued upgrading of ultrasonic test equipment on Sperry detector cars in addition to induction test devices. The ultrasonic equipment is designed specifically for the detection of web defects in the joint area and at the same time provides more reliable detection of most defects outside joint-bar limits.

The ultrasonic equipment first went into service on Sperry cars about 10 years ago. There followed, as shown by the charts, a sharp increase in defects (bolt-hole cracks and head-and-web separations) detected in joint-bar areas. In 1961, the number of such defects found came to 15,400. By 1970 the number had grown to 70,546. In that year, 59% of total defects found were hidden inside the limits of joint bars. As recently as 1959, this figure had been 51%.

The proportion of joint defects detected is expected by Sperry Rail Service to go on increasing due to continuing equipment modifications and the fact that increasing wheel loads and tonnage seem to have a greater effect on joint-defect development than on that of defects in other parts of the rail.

A startling fact brought out by Owen is that rails removed from track in 1970 due to discovery of 119,509 defects were equivalent to 400 miles of track. ■

What unit trains do to track

Coping with new track problems means, in general, higher maintenance costs.

The unit train is an invention that has brought a ray of sunshine into the lives of rail traffic men and perhaps top management, too. But it has brought no sunshine into the lives of track men. At best, they see no unusual increases in track-maintenance problem costs resulting from the operation of unit trains. At worst, they say the unit trains of heavy cars have brought their own brand of track problems, particularly increased rail wear and other rail problems, such as shelling, on curves.

From experience, track men are learning how to cope with the problems produced by the unit train. But the measures they are taking mean a greater outlay for track maintenance. At the same time, they insist that proper maintenance and servicing of the cars are necessary if problems, including derailments, are to be minimized. They may also want a voice in deciding how fast unit trains are to be operated to avoid rock and roll and excessive impact and other types of damage to the track.

These thoughts of track-maintenance men come out in a survey made by Railway Age.

Aside from the heavier tonnages they impose on the track, unit trains of 100-ton cars have other characteristics that can result in complications. One top engineer ascribes these complications to the fact that all the cars in a unit have the same truck and wheel spacings. This, he says, causes a harmonic action to be set up that results in greater impact on the joints and aggravates rail creepage.

● **The "walking" cars.** This engineer, as well as others contacted in the survey, emphasizes the importance of proper maintenance of the equipment. He cites a case in which the heavy loads apparently caused a breakdown of the lubricant in the truck center plates of one or more cars. The resulting lack of swivelling action in the trucks, he says, can result in a high rate of rail wear on the high sides of curves, and cause the cars "to walk right off the track."

Another characteristic of unit trains that may cause increased maintenance costs beyond those resulting from greater tonnage is the fact that high-strength components are used in their construction, according to the top engineering officer of another road. His reasoning is that such components "maximize drawbar pull with a corresponding effect on gauge widening and curve wear." "It may be stated as a generalization," he adds, "that higher track-maintenance costs" result from this action of the cars in unit trains.

● **Can't assign costs.** The comments of this officer and others indicate that, while there may be higher costs resulting from the peculiar characteristics of unit-train operation, they are not prepared, or are unable, to assign an incremental figure to these costs over and above those resulting from the greater tonnage.

One officer lists five steps his road is taking on lines carrying heavy tonnage, saying that they "might in part be necessitated by unit-train operation." They are:

—Auxiliary snubbing of cars susceptible to rocking.

—Use of welded rail to reduce joint-maintenance and forces that cause car rocking.

—Use of heat-treated rail at certain locations to reduce curve wear.

—Anchoring and double-spiking of curves to prevent gauge-widening.

—Uniform and careful track inspection to correct potential trouble areas.

This officer sums up his experience and reasoning: "While there may be increased track-maintenance costs because of unit-train operation, we do not consider these costs to be of sufficient magnitude to assign to them a meaningful incremental cost."

An officer whose thinking is somewhat along the same lines is W. J. Jones, engineer maintenance of way and structures, Southern Pacific System. Jones explains that SP has a unit-train operation involving the movement of 100-ton ore cars over part of its main line. He adds: "Since it is not practical to isolate the effect of the unit trains on the track structure, we can only conclude that unit trains consisting of 100-ton cars increase the cost of track maintenance, but we are not in a position to say to what extent."

Jones describes a location in unit-train territory on his road subject to the effects of blow sand. Rail through the sand territory, he says, is more susceptible to head-checking and acceleration rail wear than is to be found outside the sand territory. Then he raises this question: "Who can say, however, that the unit trains which operate over this route do not also induce stresses contributing to the head checking and rail wear?"

● **BN's experience.** In most of the situations where unit trains have gone into service they are operated over existing lines along with regular passenger and freight traffic. Such is the case on Burlington Northern. B. G. Anderson, the BN's assistant vice president-engineering, explains that unit-train coal movements have developed suddenly between coal fields in Montana and Wyoming and Chicago-area power plants, and adds that much of this movement is over main-line track which heretofore has been maintained for normal passenger and freight service. Here's how he describes his road's experience with the new traffic:

"The unit coal train operations have added 9.5 million gross tons annually of traffic over this line since the movement began in 1968. This traffic has substantially increased maintenance costs. Anchorage and joint maintenance had to be improved, and programs for relaying and ballasting accelerated. It is also necessary to re-analyze curve super-elevation requirements to take into account the preponderance of slower-moving, heavy-tonnage unit coal trains.

"Another area of increased maintenance is in sidings. Sidings with lightweight rail have to be relaid, and all sidings require additional anchorage and ballast. Our experience with the 100-ton-car unit coal train hasn't been long enough to determine a rail-wear pattern, but our experience with heavy-tonnage ore trains does indicate an increase in curve-rail wear and shelling. Use of heat-treated and later Curvemaster rail has reduced rail wear and in my judgment has more than doubled rail life on 4-degree and sharper curves."

SPECIAL TRACK PROBLEMS, says L&N, are created by unit trains of 100-ton cars.

● **Strong track needed.** The need for new and heavier rail sections, along with a heavy-duty track section generally, in unit-train territory is emphasized by R. C. Tench, chief engineer-system, C&O/B&O. The concept of one commodity hauled as a unit is not new on these lines, Tench recalls. "Solid trains of coal have been hauled for years from marshalling yards to port facilities on the Great Lakes and the Eastern Seaboard," he says. "Also, solid trains of ore have been hauled from the ports to the mills. A strong track structure, consisting mostly of 132-pound and 140-pound rail with 22 to 24 ties per 39-foot rail on 12 inches of crushed stone ballast, was installed on the main lines over which this traffic was carried in 70-ton and 80-ton cars."

There is no indication, says Tench, that unit trains of 100-ton cars increase the cost of maintenance of this heavy-duty track when the speed is limited to 40 mph. However, he adds, "there have been increased costs upon operation of the trains on branch lines." His opinion is that the problem can be attributed more to the weight and configuration of the cars than the unit-train concept.

● **Increased rail program.** Tench explains that where unit trains are operated over lines laid with old or light rail sections, the incidence of detected and service rail failures has increased. Therefore, he says, "our rail program has been increased and is directed toward eliminating old rail sections from main lines and light rail sections from branch lines over which the heavy cars are operated."

Another problem encountered where 100-ton cars are operated on branch lines is rock and roll, says Tench. He explains it this way: "The problem occurs when the train speed synchronizes the harmonic swaying of the cars to the timing of car wheels moving across joints. The truck centers and wheel bases of many 100-ton cars are not compatible with 39-, 36-, 33- or 30-foot rails. The rock-and-roll problem has been alleviated by installing welded rail around curves where the trains regularly operate at the synchronous speed. Where the additional maintenance expenditure is not justifiable, the rock-and-roll problem has been reduced by limiting the speed of trains to a level below the synchronous speed."

● **Wants unit trains turned.** The operation of unit trains in coal haulage on the Gulf, Mobile & Ohio has led the road's chief engineer, S. A. Cooper, to the conclusion that, in territories where there is more curvature in one direction than the other, the trains should be turned periodically. His reasoning is that unbalanced curvature causes uneven wheel wear where trains are shuttled back and forth between terminals without being turned. The uneven wheel wear has a bad effect on the rail, he reasons. His preference would be to turn the trains every three months.

Like some other railroads, GM&O is using heat-treated rail on certain curves in unit-train territory. Cooper explains that the road has been installing ball-contour heat-treated rail on the low sides of curves of 1 degree, 30 minutes or sharper. The purpose is to overcome the crushing or flattening effect the cars were having on conventional rails laid in those locations. This practice has produced results, he indicates.

In an attempt to overcome the shelling problem afflicting the high rails on curves in unit-train territory, GM&O, Cooper says, has now extended the use of heat-treated rail to those rails on curves of 1 degree, 30 minutes or more. After three years there is no sign of shelling in these rails. The need for proper lubrication of the high rails on curves is also emphasized by Cooper.

● **What L&N had to do.** Louisville & Nashville has found it necessary to take numerous special measures in territories where unit trains of 100-ton cars are operated, according to J. I. Adams, chief engineer. "There is no doubt," he adds, "that the operation of unit trains with 100-ton cars has in-

creased the cost of track maintenance, but the exact extent of the increase is hard to evaluate."

As enumerated by Adams, the problems resulting from the operation of such trains on L&N have included rail shelling, particularly on stiff curves, flow of the low rail on curves due to slow movement of trains up grade, and joint maintenance on the low sides of curves.

He thinks that the shelly problem could be overcome by the use of fully heat-treated rail which "seems to have less tendency to shell than ball-contour heat-treated rail. It is our present policy," he adds, "to use heat-treated rail on the high sides of curves in heavy-tonnage areas where curvature is 4 to 6 degrees and up, giving preference to the sharper curves."

● **Rail practices.** As for the problems encountered on the low sides of curves on L&N, Adams explains that heat-treated rail is used in such locations where the rail has a tendency to flow or flatten. Where the joint-maintenance problem is encountered on inside curve rails, welded rail is being installed. In Adams' opinion, "this practice has proved to be quite worthwhile and has enabled us to reduce the tendency for high-cube, high-center-of-gravity cars to rock and roll."

Another L&N practice is that of cropping and welding relay rail that has been traffic hardened on tangent track and relaying it on the high sides of curves where, in Adams' words, it "will last about twice as long as standard non-hardened new rail."

Crossties are also a problem on lines carrying unit trains, Adams indicates. To help maintain surface and line, and at the same time increase tie life on curves by reducing tie-plate cutting in 100-pound rail territory, the road, he says, has installed 132-pound plates (7 inches by 14 inches), replacing the 100-pound plates (7 inches by 11 inches) in such territory. In such cases, hold-down spikes are installed, one on each side of the rail, in addition to the regular rail spikes. In many cases this has reduced the need for gauge rods on curves, Adams says. He adds that, in some areas, the road has double-spiked on the field sides of high rails on the heavier curves.

● **Main-line ties on branches.** On some mine spurs and branch lines where 100-ton cars are operated, L&N has found it necessary, says Adams, to use main-line ties where branch-line ties were formerly satisfactory. This has helped increase the tie life in these areas, he adds, but at a higher cost per tie. To a lesser extent it has helped to maintain line and surface.

Unit-train 100-ton cars cause a harmonic action that results in greater impact on the joints and aggravates rail creepage.

Further complicating track problems created by the operation of unit trains are the six-axle locomotives used to haul the trains, Adams explains. In particular, he says, these locomotives increase the difficulty of maintaining surface and line, requiring more frequent gauging of the track. He adds: "This has been overcome to some extent by the use of hold-down fasteners such as full-throat spikes or other special hold-down spikes available from several manufacturers. The lateral force of six-axle locomotives also tends to cant or turn over both the high and low rails. To help eliminate this problem, we have at many locations installed special gauge rods that have clamps both inside and outside the rail base.

"The tendency of rail to cant or turn over where six-axle locomotives are used along with 100-ton cars tends to increase the plate-cutting of ties on the field sides of both high and low rails. This decreases tie life and results in the need for more frequent timbering and surfacing, thus materially increasing the cost of track maintenance."

● **Track inspection upgraded.** The need for increased track inspection is also mentioned by Adams. This is partly due to operating unit trains and partly to the need to increase the general inspection at regular intervals, he says, the interval being governed by the type and speed of traffic and the general condition of the track.

"To meet this need," Adams explains, "we have found it necessary to put on assistant roadmasters, with truck drivers, using highway/railway trucks. Their principal duties are to patrol track at regular intervals, taking care of minor repairs, such as replacing bolts, pulling joints, and so forth, and reporting conditions needing further attention to their roadmasters or other supervisors."

● **No problems on Santa Fe.** Santa Fe is one road that hasn't experienced unusual problems as the result of the operation of unit trains, reports W. S. Autrey, chief engineer of the system. "For several years," he says, "we have been operating unit trains of coal from northern New Mexico to the Kaiser steel plant at Fontana, Calif., and do not feel that we have experienced any unusual increase in track maintenance due to this operation. We are now operating a unit train of sulphur from a point south of Carlsbad, N.M., through Clovis to Galveston and have experienced no unusual problems.

"While any increase in tonnage will naturally increase rail wear and result in increased track maintenance, we do not feel that the increase due to the operation of unit trains is any greater than would be experienced due to the operation of the same tonnage handled in mixed trains."

● **The UP's experience.** Union Pacific's experience has been similar to that of Santa Fe. "On the Union Pacific," says R. M. Brown, chief engineer, "we have not experienced any unusual problems or additional cost in maintaining track for unit-train operations where such trains are operated on main-line tracks that are normally maintained for high-speed, heavy-tonnage operation. While it is true that most unit trains consist entirely of 100-ton cars, I don't feel that this factor in itself increases the cost of the track maintenance.

"Cars of 100 tons to 125 tons capacity are becoming increasingly predominant in all train consists, and, consequently, I don't feel that those being moved in unit-train operations are increasing the cost of track maintenance as much as those heavy cars being moved across the railroad at much faster speeds in manifest trains. On our property, we permit manifest trains to operate at a maximum speed of 70 mph, whereas, in most cases we confine unit-train operations to a maximum of 50 to 60 mph.

"It is true, of course, that where you have heavy unit-train operations over branch lines, this does increase the cost of maintaining the track structure on these secondary tracks which were not constructed or previously maintained to accommodate this heavy traffic. The additional cost to maintain these secondary branch lines would, of course, depend upon the type and quality of track structure which we had on the branch line prior to initiating the operation of unit trains. We have found it necessary in several cases to upgrade the track structure on branch lines to accommodate unit-train operations by relaying lightweight rail sections, making heavy tie renewals, and resurfacing and realigning the track on adequate ballast. Once this is done, however, we have not found the cost of maintaining these tracks to be excessive." ■

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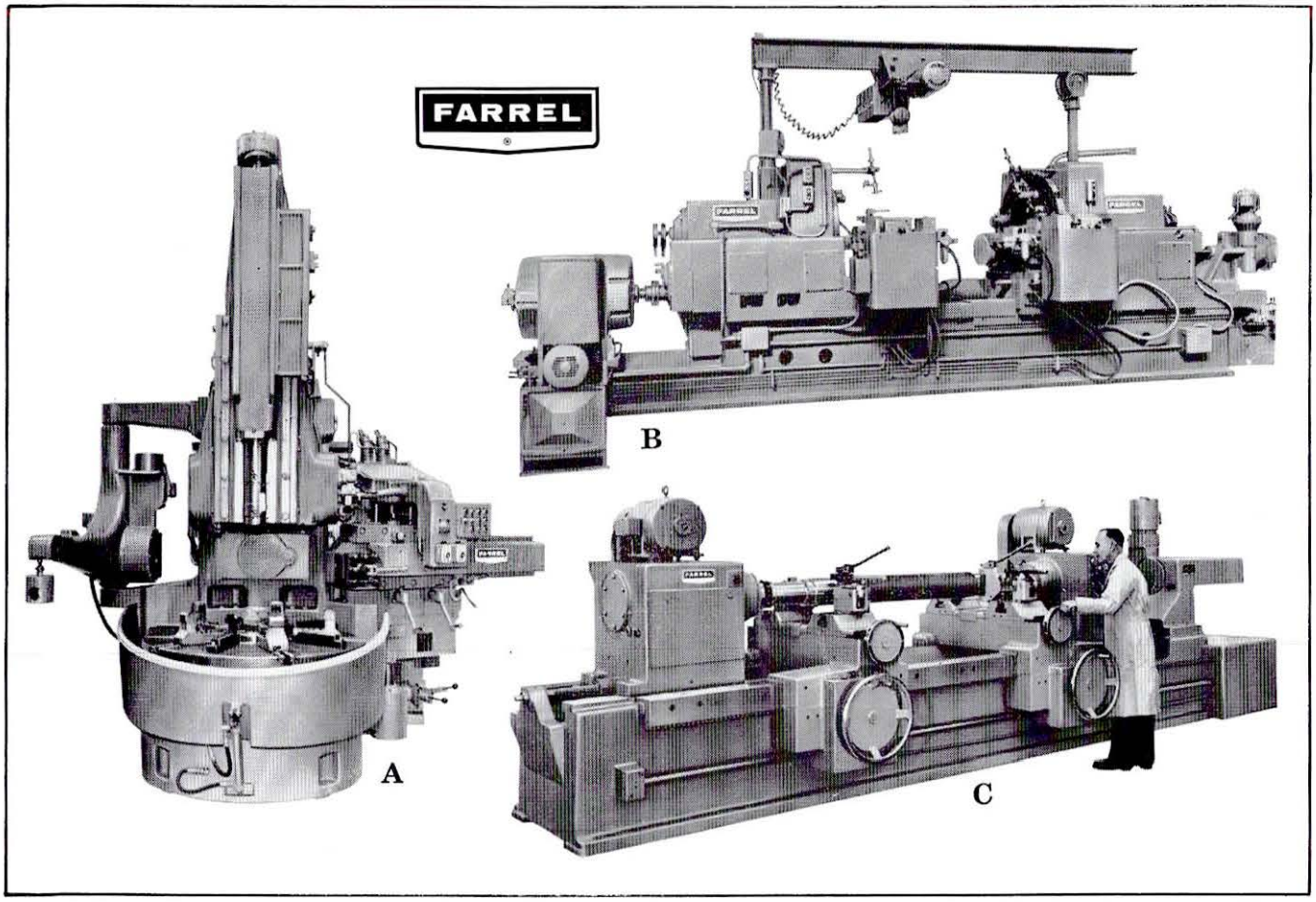

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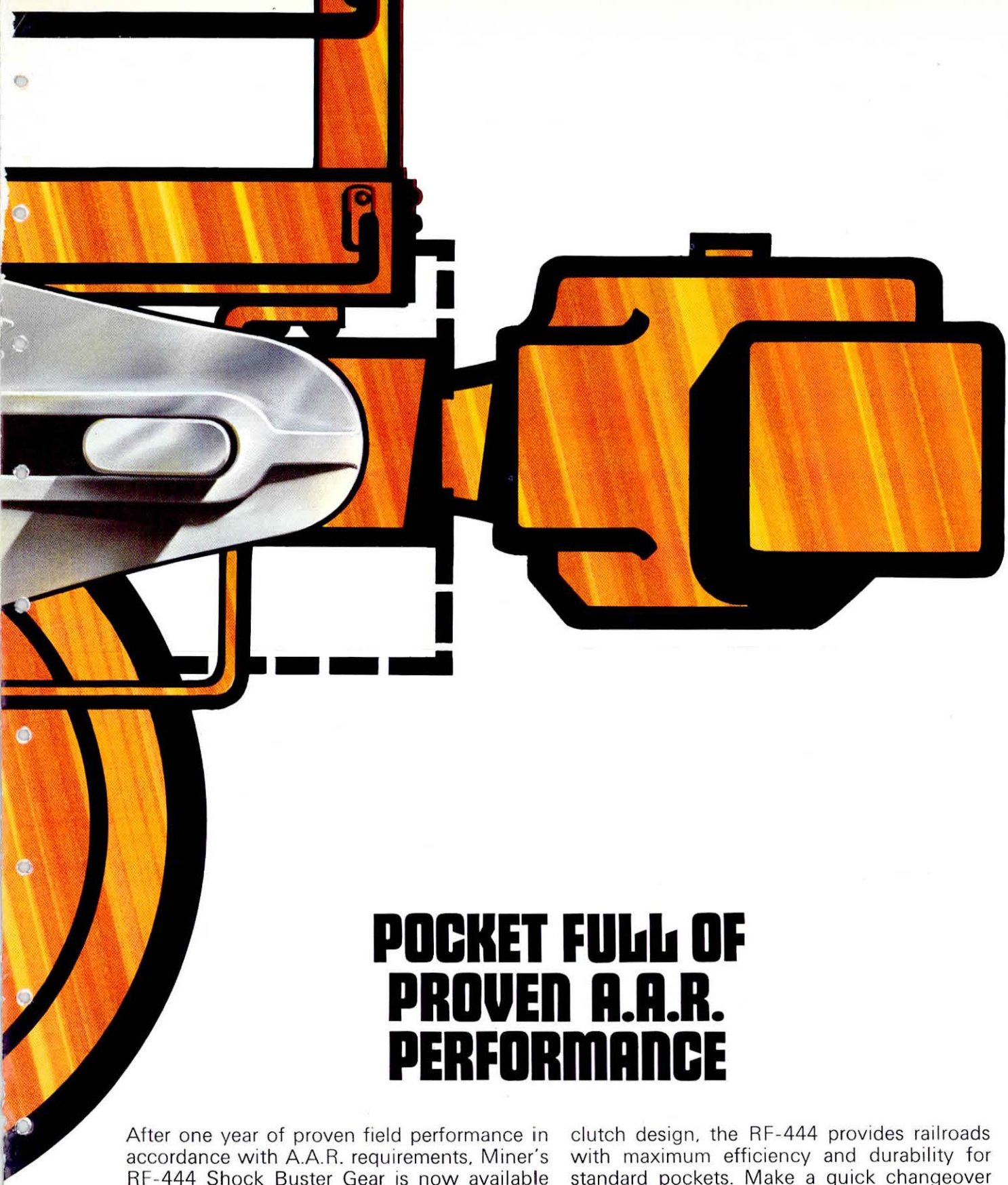

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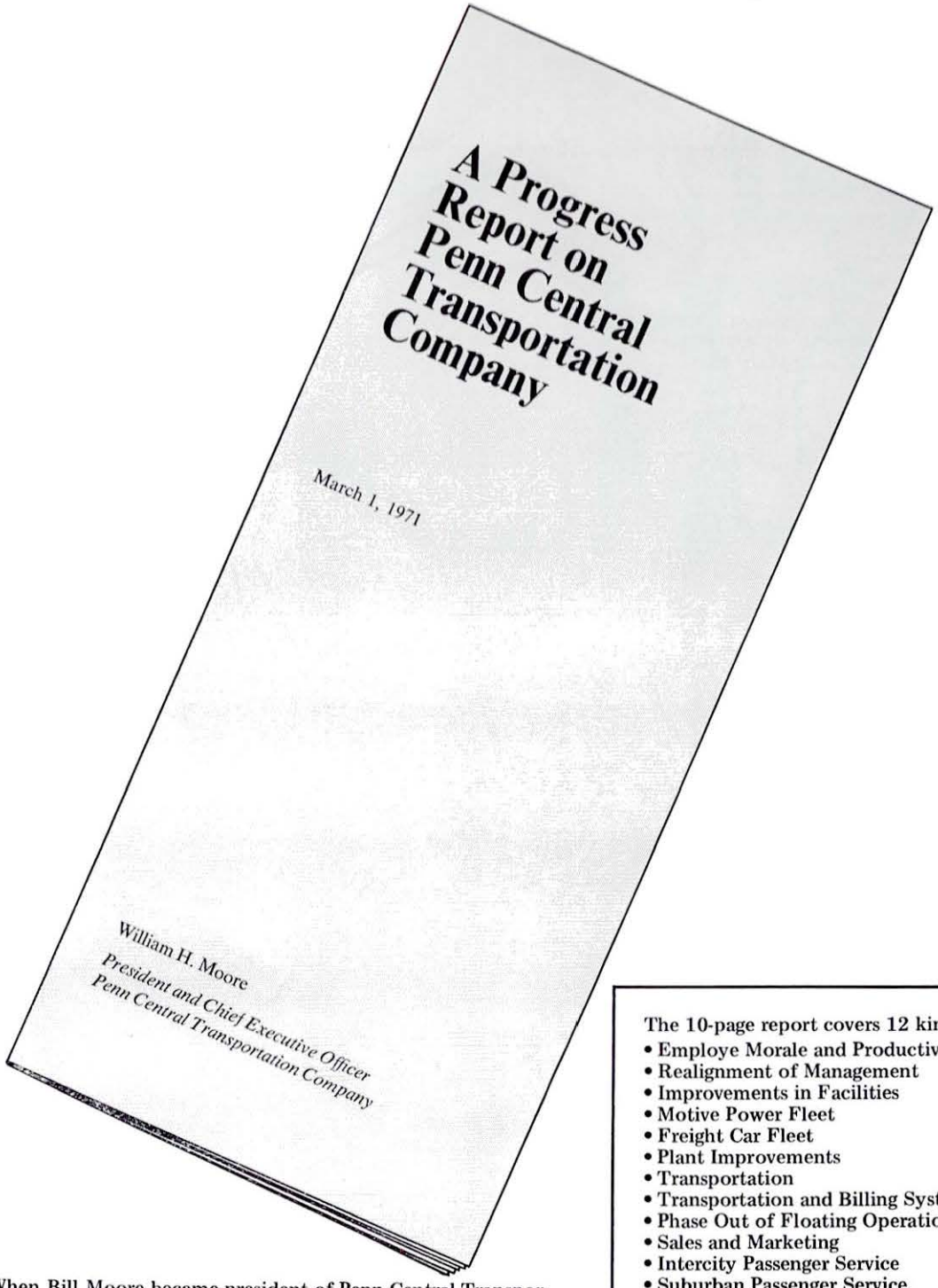
Recommended Reading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March 1, 1971
William H. Moore
President and Chief Executive Officer
Penn Central Transportation Company

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PENN CENTRAL TRANSPORTATION COMPANY

Fourth Quarter and Twelve Months' Figures of Calendar Year 1970

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railways tax accruals	Net Railway operating income	
							Maint. Way and Structures				Maint. Equipment											
			Freight	Pass.	Total 1970	(inc. misc.) 1969	Total 1970	Total 1969	Deprec. and Retire-ments	Total 1970	Total 1969	Deprec. and Retire-ments	Traffic	Trans-portation	Total 1970	Total 1969	1970	1969			1970	1969
Akron, Canton & Youngstown	3 mos.	171	1,649	—	1,707	1,807	350	479	24	396	344	120	89	725	1,677	1,746	98.3	96.6	29	4	431	—140
	12 mos.	171	7,087	—	7,387	7,831	1,340	1,404	97	1,391	1,382	483	413	2,823	6,425	6,601	87.0	84.3	962	632	902	612
Ann Arbor	3 mos.	299	2,596	—	2,658	2,268	313	344	22	418	451	123	59	1,317	2,196	2,219	82.6	97.8	462	202	—5	—352
	12 mos.	299	9,718	—	10,075	9,459	1,032	1,436	88	1,795	1,791	506	253	5,101	8,569	8,766	85.0	92.7	1,507	791	—178	—846
Atchison, Topeka & Santa Fe	3 mos.	12,883	183,362	4,648	201,421	188,373	25,266	29,897	1,972	38,335	33,968	11,044	5,065	67,362	147,313	151,439	73.1	80.4	54,109	21,125	22,040	13,985
	12 mos.	12,883	682,668	20,897	753,318	719,216	111,884	108,211	10,845	150,575	136,566	43,347	19,774	280,678	602,512	576,313	80.0	80.1	150,806	69,145	52,981	59,166
Baltimore & Ohio	3 mos.	5,552	111,714	604	118,301	118,642	16,295	14,088	3,167	19,068	15,150	3,025	3,041	45,952	92,738	84,907	78.4	71.5	25,563	8,431	3,067	11,586
	12 mos.	5,552	451,891	2,662	479,190	461,128	60,596	57,788	8,140	77,594	68,960	11,122	11,873	188,976	368,564	343,528	76.9	74.5	110,626	34,669	18,862	31,940
Bangor & Aroostook	3 mos.	543	2,640	67	2,819	3,287	945	806	96	1,240	1,301	435	78	958	3,444	3,539	122.2	107.7	—625	318	133	149
	12 mos.	543	12,478	257	13,022	13,424	3,698	3,235	304	4,870	4,528	1,735	345	4,442	14,335	13,469	110.1	100.3	—1,314	1,296	654	1,563
Bessemer & Lake Erie	3 mos.	221	11,728	—	12,476	10,625	1,329	996	170	1,742	1,625	185	184	3,156	7,601	6,164	60.9	58.0	4,874	2,597	2,671	1,637
	12 mos.	221	40,961	—	43,951	38,075	5,118	4,636	559	6,715	6,147	1,181	665	11,195	27,204	23,614	66.4	62.0	16,747	8,555	8,618	7,276
Boston & Maine	3 mos.	1,515	14,320	1,412	17,498	17,871	2,798	2,532	421	3,250	2,918	636	352	8,920	16,229	15,100	92.7	84.5	1,270	1,584	—2,904	—690
	12 mos.	1,515	58,816	5,278	70,717	69,454	10,861	9,930	1,738	12,387	11,346	2,554	1,452	34 054	62,548	58,617	88.4	84.4	8 168	5,925	—6,169	—2,541
Burlington Northern	3 mos.	23,610	213,196	6,608	231,217	207,104	29,280	27,490	2,990	38,176	35,701	14,068	5,915	89,165	176,931	167,266	76.5	80.8	54,286	22,308	20,446	16 266
	12 mos.	23,565	799,493	26,711	870,453	803,185	127,430	117,668	14,751	154,274	143,167	48,495	25,040	364,433	734,426	668,175	84.4	83.2	136,027	81,792	38,380	45,562
CPR Lines in Maine	3 mos.	234	1,389	53	1,504	1,289	494	360	63	289	262	47	59	638	1,629	1,410	108.3	109.4	—125	92	—445	—435
	12 mos.	234	6,307	204	6,724	7,515	1,398	1,490	251	1,343	1,341	187	245	2,671	6,235	6,138	92.7	81.7	489	335	—907	—179
Central of Georgia	3 mos.	1,729	14,720	90	15,220	14 518	3,126	2,513	259	2,813	2,771	758	319	4,400	12,384	11,693	81.4	80.5	2,836	1,994	1,048	1,799
	12 mos.	1,729	57,057	560	59,098	54,883	10,790	11,062	978	10,785	10,076	3,084	1,276	18,691	46,731	46,448	79.1	84.6	12,367	5,632	4,213	2,127
Central RR of New Jersey	3 mos.	594	9,168	1,016	11,855	12,843	1 694	2,031	257	2,234	2,235	317	302	7,153	12,406	11,736	104.6	91.4	—551	1,311	—3,754	—1,984
	12 mos.	594	38,633	4,166	49,877	52,288	7,022	6,611	1,068	8,738	8,564	1,344	1,174	27,356	47,912	45,685	96.1	87.4	1,965	4,845	—10,502	—5,631
Central Vermont	3 mos.	382	2.062	—	2.139	2,099	545	487	98	131	199	13	22	910	1.703	1,760	79.6	83.6	437	180	—126	—108
	12 mos.	382	8.562	2	8,882	8,809	2,098	1,804	372	716	842	52	92	3,565	6,932	6,975	78.0	79.2	1,951	683	369	—88
Chesapeake & Ohio	3 mos.	5,067	112,687	275	117,249	109,425	14,420	16,749	1,811	21,378	21,527	6,133	3,078	43,371	90,140	91,591	76.9	83.7	27,109	8,351	14,987	13,981
	12 mos.	5,074	432,300	1,571	453,031	413,186	53,770	53,449	6,558	85,657	80,014	24,134	11,908	178,965	357,041	334,245	78.8	80.9	95,989	39,687	42,242	40,222
Chicago & Eastern Illinois	3 mos.	643	7,560	—	7,724	6,788	1,559	1,618	138	1,320	1,510	358	275	2,060	5,528	6,659	71.6	98.0	2,196	591	1,026	—1,089
	12 mos.	643	29,817	—	30 444	37,552	6,345	7,876	276	5,380	7,013	1,435	1,205	10,210	24,601	31,683	80.8	84.4	5,843	1,361	822	—1,121
Chicago & Illinois Midland	3 mos.	121	1,221	—	1,268	1,076	185	126	21	505	268	169	7	467	1,476	822	116.4	76.3	—208	448	337	160
	12 mos.	121	4,246	—	4,452	4,039	625	483	107	1,410	930	408	27	1,512	4,227	3,157	94.9	78.2	226	115	497	234
Chicago & North Western	3 mos.	11.046	70,470	5,506	79,703	75,271	8.164	12,970	893	13,580	12,477	5,693	2,165	33,276	62,320	66,909	78.2	88.9	17,383	5,958	5 404	—5,372
	12 mos.	11.265	278,711	21,963	313,928	285,982	42,744	44.948	6,722	51,235	50,193	18,771	8,649	133,066	255,205	251,587	81.3	88.0	58.723	24,310	8,504	—18.373
Chic., Milw., St. Paul & Pacific	3 mos.	10.448	62.119	2.074	69,096	67.449	10.328	10,066	1,690	10,609	10.883	3.236	1.789	30.309	57,333	56,557	83.0	83.9	11.763	6.101	920	—2,247
	12 mos.	10.471	248,729	9,174	277,540	269,108	45,355	44,773	6,251	45,253	44 846	12.692	7,593	121,270	237,411	230,631	85.5	85.7	40,129	24,889	—7,867	—10 182
Chicago, Rock Island & Pacific	3 mos.	7,152	65.489	1,198	69,867	67.220	8.309	4,959	310	10.207	10,794	1,708	1,852	29.295	53,023	51,044	75.9	75.9	16.844	4,641	—1,556	1.795
	12 mos.	7,169	257,531	4,829	273,465	259,584	37,390	35,444	3,317	43.879	41.927	6,983	7,581	119,199	221.904	211,222	81.1	81.4	51.561	19,428	—14,359	—7,877
Clinchfield	3 mos.	312	10.096	15	10.199	8,878	693	661	80	1,600	1,219	604	266	2.753	5,625	4,690	55.2	52.8	4,574	825	2 540	3,421
	12 mos.	311	36,439	31	36,747	33,502	2,954	3,071	305	5.752	4,827	2,419	1,053	9 998	20 970	18.826	57.1	56.2	15.777	3,274	11,334	12,046
Colorado & Southern	3 mos.	692	4,920	—	5.046	4,784	598	558	40	700	724	302	19	1.745	3,347	3,111	66.3	65.0	1,699	1,182	216	759
	12 mos.	692	19,179	—	19,634	17.951	2,473	1,998	190	3,012	2,719	1,209	169	6.611	13.518	12,122	68.9	67.5	6.116	2,729	1 931	2,929
Ft. Worth & Denver	3 mos.	1.201	4.806	—	4.957	4,763	847	767	137	612	561	99	62	2,471	4.324	4,195	87.2	87.9	634	Cr, 432	155	—72
	12 mos.	1,221	18,654	—	19,479	17,833	2,924	2.704	394	2,198	2,145	438	483	9,286	16,325	15,167	83.8	85.1	3,154	338	—94	199
Delaware & Hudson	3 mos.	751	11,052	135	11.479	10,967	1,468	1.333	138	1.832	1,923	409	363	4,445	8.869	8.695	77.3	79.3	2.610	1,339	369	876
	12 mos.	751	44,185	583	46.062	45.026	6.335	5.572	514	8.601	7.685	1.632	1,481	18,325	37.754	34,416	82.0	76.4	8.308	5,588	1.031	4.916
Denver & Rio Grande Western	3 mos.	1,899	24.634	58	25,230	25,786	2.415	2.457	504	3,570	3,804	1.299	867	8 214	16.528	16,737	65.5	64.9	8,702	4,987	3.211	3,906
	12 mos.	1,899	94,705	1.021	97,798	98.579	9.997	10.086	1,579	14,947	14,942	5,265	34.10	31,741	65.942	66,766	67.4	67.7	31.856	18.065	13.470	14,355

Fourth Quarter and Twelve Months' Figures of Calendar Year 1970

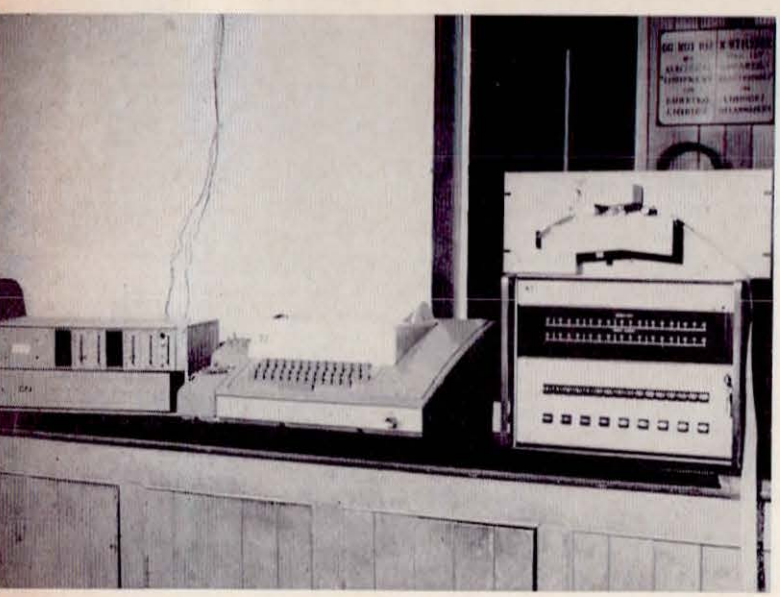
(Dollar figures are stated in thousands: i.e., with last three digits omitted)

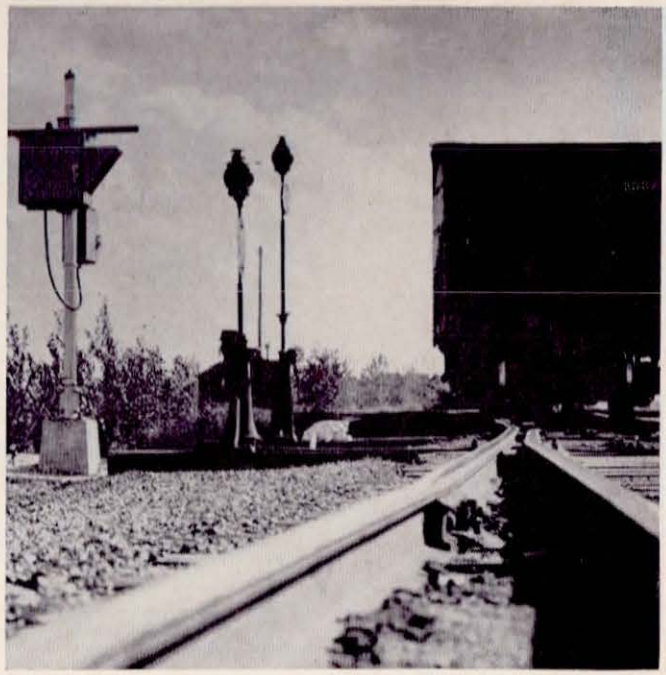
Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railways tax accruals	Net Railway operating income	
							Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	Total 1970	(inc. misc.) 1969	Total 1970	Total 1969	Deprec. and Retirements	Total 1970	Total 1969	Deprec. and Retirements	Traffic	Transportation	Total 1970	Total 1969	1970	1969			1970	1969
Detroit & Toledo Shore Line	3 mos.	50	1,294	—	1,442	1,804	99	171	32	263	297	120	60	511	1,026	1,275	71.2	70.1	416	185	118	195
	12 mos.	50	5,954	—	6,455	6,934	618	774	96	1,143	1,117	468	264	2,283	4,730	5,080	73.3	73.3	1,725	800	526	732
Detroit, Toledo & Ironton	3 mos.	478	8,336	—	8,681	8,191	737	692	93	1,605	1,730	583	219	3,220	6,345	6,291	73.1	76.8	2,336	754	1,112	888
	12 mos.	478	30,928	—	32,127	31,209	3,189	2,652	364	6,409	6,035	2,380	923	12,227	24,878	22,812	77.4	73.1	7,248	2,916	3,039	3,281
Duluth, Missabe & Iron Range	3 mos.	504	7,703	—	8,399	8,191	1,513	1,483	178	1,651	1,522	545	81	2,951	7,579	6,626	90.2	80.9	821	1,294	—226	958
	12 mos.	507	41,402	—	45,282	41,783	5,746	5,832	978	6,313	5,990	2,178	245	11,099	27,659	26,323	61.1	63.0	17,622	12,496	5,787	6,020
Duluth, Winnipeg & Pacific	3 mos.	170	2,213	—	2,212	2,448	355	223	16	195	179	2	53	915	1,592	1,342	72.0	54.8	620	269	97	374
	12 mos.	170	9,671	—	9,781	9,002	1,278	1,133	63	792	878	9	214	3,415	5,977	5,683	61.1	63.1	3,804	1,546	945	748
Elgin, Joliet & Eastern	3 mos.	205	10,285	—	15,491	15,171	1,403	1,448	118	1,518	2,634	370	204	6,758	12,340	11,697	79.7	76.2	3,151	2,828	1,404	428
	12 mos.	205	41,575	—	62,146	60,490	6,241	6,222	471	9,658	9,622	1,884	774	24,693	48,825	46,065	78.6	77.1	13,321	8,397	2,922	2,352
Erie Lackawanna	3 mos.	2,871	59,592	2,825	66,998	63,417	6,697	5,897	627	10,886	11,042	1,848	1,281	31,002	52,712	50,187	78.7	79.1	14,286	5,034	1,388	1,958
	12 mos.	2,878	231,530	11,186	262,150	251,261	29,652	28,290	2,873	42,822	41,017	7,466	5,500	122,886	212,169	199,661	80.9	79.5	49,981	21,310	—332	9,049
Florida East Coast	3 mos.	554	7,838	—	7,996	7,961	2,733	1,967	193	799	1,218	292	209	2,067	6,291	5,143	78.7	64.6	1,705	393	347	704
	12 mos.	554	29,486	—	30,100	30,505	10,086	8,277	771	3,977	4,338	1,163	825	7,809	24,503	22,479	81.4	73.7	5,598	1,528	612	1,285
Georgia Railroad	3 mos.	331	2,905	4	3,017	2,754	378	328	16	459	583	98	139	953	2,098	2,113	69.5	76.7	919	163	510	290
	12 mos.	331	10,539	11	10,967	10,214	1,492	1,438	102	1,641	1,821	376	558	3,648	8,004	7,983	73.0	78.2	2,963	635	1,527	924
Grand Trunk Western	3 mos.	946	13,679	387	14,833	19,893	3,283	2,300	239	3,161	3,059	153	525	9,123	17,460	17,573	117.7	88.3	—2,628	1,879	—8,665	—4,103
	12 mos.	946	65,049	1,576	70,321	75,503	12,170	9,350	847	12,485	11,183	639	2,058	41,820	73,897	67,609	105.1	89.5	—3 576	7,918	—27,853	—17,088
Green Bay & Western	3 mos.	255	1,975	—	2,045	1,768	261	248	26	289	211	50	140	710	1,553	1,330	75.9	75.3	493	244	24	91
	12 mos.	255	7,180	—	7,366	6,721	793	808	93	995	819	202	508	2,541	5,402	4,953	73.5	73.7	1,964	924	207	247
Gulf, Mobile & Ohio	3 mos.	2,734	24,579	405	26,307	25,564	3,203	3,194	265	5,196	4,845	1,430	952	9,320	19,679	18,692	74.8	73.1	6,628	2,276	2,050	2,651
	12 mos.	2,734	97,246	1,728	104,232	99,688	13,415	13,419	1,165	20,673	19,222	5,740	3,834	36,985	79,463	74,482	76.2	74.7	24,769	8,887	8,870	10,160
Illinois Central	3 mos.	6,761	78,010	5,189	86,928	88,279	13,036	11,307	1,643	14,801	17,434	3,523	2,095	33,274	67,751	71,099	77.9	80.5	19,177	8,627	5,734	5,791
	12 mos.	6,766	302,035	21,531	338,090	322,700	49,502	42,531	5,925	58,147	57,562	16,589	8,804	129,889	267,062	255,608	79.0	79.2	71,027	31,894	20,682	21,602
Illinois Terminal	3 mos.	395	2,594	—	2,922	2,752	365	287	11	411	413	87	85	1,200	2,263	2,097	77.5	76.2	658	209	267	84
	12 mos.	394	10,218	—	11,586	10,357	1,320	1,140	44	1,709	1,787	364	332	4,667	8,837	8,286	76.3	80.0	2,749	845	354	—59
Kansas City Southern	3 mos.	1,667	23,021	—	24,409	22,062	3,644	2,081	1,320	4,223	3,473	1,188	852	8,176	18,084	14,614	74.1	66.2	6,325	1,887	3,085	3,665
	12 mos.	1,676	88,968	4	94,303	83,636	11,923	9,132	2,077	15,478	13,200	4,743	3,357	31,329	66,669	57,293	70.7	68.5	27,634	8,602	10,935	11,456
Lake Superior & Ishpeming	3 mos.	130	765	—	1,257	1,910	198	290	53	285	400	189	12	680	1,339	1,422	106.5	74.5	—82	50	—46	2
	12 mos.	130	4,125	—	6,283	7,217	920	1,105	211	1,468	1,516	756	40	2,079	5,070	5,219	80.7	72.3	1,214	1,057	422	626
Lehigh Valley	3 mos.	927	11,015	—	11,339	12,304	1,543	1,563	365	2,089	2,122	367	365	5,391	10,027	10,424	88.4	84.7	1,312	949	—1,436	—811
	12 mos.	938	46,320	—	47,917	48,819	6,111	5,828	1,072	7,519	7,021	1,096	1,569	23,441	41,743	40,971	87.1	83.9	6,174	3,953	—4,939	—3,298
Long Island	3 mos.	322	2,394	20,284	23,564	22,472	5,091	3,241	265	8,871	6,700	1,584	30	16,286	32,472	26,550	137.8	118.1	—8,908	1,849	—12,025	—6,735
	12 mos.	322	9,599	81,890	95,395	88,184	16,518	11,978	1,112	30,299	23,811	4,284	947	60,955	116,748	97,801	122.4	110.9	—21,353	7,172	—31,792	—20,267
Louisville & Nashville	3 mos.	6,062	97,221	242	100,051	92,261	15,377	13,713	1,516	19,683	19,257	7,215	2,121	33,145	75,281	77,065	75.2	83.5	24,770	8,508	15,281	6,539
	12 mos.	6,067	369,495	1,042	381,469	340,594	56,116	49,837	5,380	75,762	70,646	28,149	8,794	140,115	301,181	275,891	79.0	81.0	80,288	29,588	43,234	32,916
Maine Central	3 mos.	921	6,092	—	6,301	6,159	1,292	1,171	111	1,281	1,329	284	117	2,432	5,530	5,526	87.8	89.3	771	509	820	—140
	12 mos.	921	25,224	2	25,864	25,202	5,117	5,041	416	5,167	5,250	1,141	495	9,961	22,369	22,065	86.5	87.6	3,495	1,965	1,093	128
Missouri Illinois	3 mos.	333	1,747	—	1,782	1,896	294	605	9	688	711	346	45	408	1,535	1,873	86.1	98.8	247	389	1,076	673
	12 mos.	333	7,090	—	7,171	6,986	1,213	1,307	—12	2,924	2,589	1,389	191	1,716	6,437	5,877	89.8	84.1	735	1,101	3,391	3,710
M-K-T Lines	3 mos.	2,623	17,065	—	17,657	17,067	1,942	2,490	—180	2,054	2,339	362	877	6,835	12,605	13,580	71.4	79.6	5,053	1,176	1,941	—723
	12 mos.	2,658	66,935	—	69,406	66,701	10,105	10,112	1,300	8,457	8,394	1,515	3,792	26,702	52,594	51,277	75.8	76.9	16,812	5,338	—672	—1,347
Missouri Pacific	3 mos.	8,905	86,647	144	91,371	93,002	13,111	14,585	1,502	14,736	15,779	3,798	2,113	32,771	67,182	69,007	73.5	74.2	24,189	5,257	7,745	7,953
	12 mos.	8,912	350,207	1,220	369,428	351,632	53,805	55,145	5,827	60,153	58,218	15,417	8,806	133,165	273,357	261,886	74.0	75.5	96,071	25,357	31,381	28,949
Monon	3 mos.	540	606	—	5,801	5,789	758	876	62	996	1,042	200	244	2,200	4,608	4,804	79.4	82.9	1,193	450	27	100
	12 mos.	540	22,670	—	23,491	22,718	2,944	3,234	266	3,762	3,535	823	1,006	8,910	18,269	17,890	77.7	78.7	5,223	1,691	886	768

Fourth Quarter and Twelve Months' Figures of Calendar Year 1970

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total 1970	Total (inc. misc.) 1969	Operating Expenses: Maint. Way and Structures: Total 1970	Total 1969	Deprec. and Retirements	Maint. Equipment: Total 1970	Total 1969	Deprec. and Retirements	Traffic	Transportation	Total 1970	Total 1969	Operating ratio 1970	Operating ratio 1969	Net from railway operation	Railways tax accruals	Net Railway operating income 1970	Net Railway operating income 1969
Monongahela	3 mos.	193	1,115	—	1,138	2,350	297	243	32	139	195	19	3	386	866	856	76.1	36.4	272	52	—9	1,220
	12 mos.	193	5,185	—	5,256	6,131	1,245	1,199	132	690	840	84	14	1,726	3,849	3,869	73.2	63.1	1,407	334	62	766
Norfolk & Western	3 mos.	7,594	184,009	340	192,068	178,353	22,192	20,048	2,740	33,128	28,954	12,823	3,955	68,357	136,715	124,981	71.2	70.1	55,353	10,684	35,518	34,399
	12 mos.	7,594	704,992	1,372	734,218	681,043	80,698	75,069	10,613	127,450	110,134	50,438	16,074	269,627	528,802	476,383	72.0	69.9	205,416	56,757	116,222	117,556
Norfolk Southern	3 mos.	624	3,265	—	3,399	3,171	622	558	85	582	491	178	151	1,006	2,633	2,484	77.5	78.3	766	179	339	235
	12 mos.	624	12,767	—	13,172	12,096	2,436	2,238	317	2,109	1,913	709	663	4,124	10,490	9,874	79.6	81.6	2,682	953	763	453
Northwestern Pacific	3 mos.	323	2,300	3	2,315	2,237	880	377	63	185	144	5	28	989	2,170	1,656	93.7	74.0	145	227	—636	—120
	12 mos.	323	9,591	16	9,648	10,271	3,115	2,511	248	741	542	13	90	3,665	7,993	7,321	82.9	71.3	1,654	932	—1,242	—76
Oregon Electric Ry	3 mos.	186	1,323	—	1,405	1,187	190	204	20	34	35	—	9	507	766	779	54.5	65.6	639	148	119	—46
	12 mos.	186	4,969	5	5,301	5,017	790	847	83	150	155	—	44	2,039	3,139	3,182	59.2	63.4	2,162	464	92	69
Penn Central	3 mos.	NOT AVAILABLE																				
	12 mos.																					
Penn Reading Seashore Lines	3 mos.	322	1,900	19	2,121	2,117	458	408	44	1,061	375	759	16	1,463	3,106	2,258	146.4	106.7	—985	172	—1,353	—916
	12 mos.	322	8,032	80	9,044	8,420	2,013	1,713	340	2,151	1,472	879	65	6,021	10,692	9,248	118.2	109.8	1,648	701	—4,478	—3,769
Pittsburgh & Lake Erie	3 mos.	209	7,386	13	7,866	9,677	1,084	942	287	3,506	3,148	1,545	167	3,725	9,112	8,727	115.9	90.2	—1,247	1,824	3,319	2,864
	12 mos.	209	35,671	59	37,964	38,405	4,994	4,082	764	13,261	12,609	6,000	784	15,218	36,827	34,364	97.0	89.5	1,137	8,361	12,769	11,253
Reading	3 mos.	1,210	24,212	2,176	29,313	26,995	3,915	4,168	1,150	4,677	4,992	1,248	680	12,686	23,790	23,238	81.2	86.1	5,524	2,557	1,725	—501
	12 mos.	1,224	94,752	8,167	114,233	108,173	16,456	16,214	2,858	19,904	19,454	5,109	2,777	51,512	98,204	92,461	86.0	85.5	16,029	10,270	—2,309	—603
Richmond, Fred. & Potomac	3 mos.	118	5,035	687	6,387	6,196	903	752	107	920	917	305	98	1,934	4,352	4,310	68.1	69.6	2,035	833	1,302	572
	12 mos.	118	20,081	3,276	26,307	27,717	3,262	2,567	443	3,893	3,496	1,179	371	8,618	18,236	17,454	69.3	63.0	8,071	3,761	4,311	3,479
St. Louis-San Francisco	3 mos.	4,547	45,470	—	47,566	45,704	5,945	4,664	586	6,154	5,816	2,394	1,632	18,817	35,185	32,159	74.0	70.4	12,381	3,373	4,814	6,150
	12 mos.	4,547	177,345	—	185,378	175,184	23,645	21,217	2,391	25,529	23,398	9,439	6,361	74,422	140,519	127,786	75.8	72.9	44,860	14,941	18,396	20,511
St. Louis Southwestern	3 mos.	1,519	29,922	1	30,392	29,947	3,682	2,691	267	6,619	5,642	2,723	763	11,513	23,411	20,300	77.0	67.8	6,981	2,298	7,382	4,816
	12 mos.	1,519	121,163	2	122,925	116,861	13,270	10,210	1,058	23,461	19,781	10,587	3,075	43,325	86,355	74,450	70.3	63.7	36,570	11,536	29,251	26,146
Savannah & Atlantic	3 mos.	167	1,398	—	1,439	1,080	153	63	11	264	246	100	27	304	801	767	55.6	71.0	638	435	584	86
	12 mos.	167	4,942	—	5,096	4,519	297	420	36	941	889	364	106	1,340	2,884	3,121	56.6	69.1	2,212	1,493	1,520	539
Seaboard Coast Line	3 mos.	9,229	120,842	3,167	128,700	121,534	16,130	15,118	1,743	21,860	21,945	6,258	3,511	47,037	94,802	92,366	73.7	76.0	33,897	11,254	13,895	7,356
	12 mos.	9,253	469,529	17,477	506,405	484,637	65,839	59,732	6,100	90,221	83,939	24,530	14,252	186,991	383,765	366,089	75.8	75.5	122,640	43,741	37,701	35,122
Soo Line	3 mos.	4,693	28,197	—	28,818	27,641	4,032	4,705	414	3,833	3,636	933	800	10,025	19,886	20,723	69.0	75.0	8,933	3,617	2,783	2,441
	12 mos.	4,694	110,786	—	113,089	105,739	17,800	16,883	1,487	15,009	14,118	3,698	3,286	42,549	83,417	79,908	73.8	75.6	29,671	12,411	8,834	7,790
Southern Railway	3 mos.	6,068	98,917	611	103,983	97,133	16,635	14,171	1,265	21,056	17,860	6,345	2,278	32,205	77,145	69,958	74.2	72.0	26,838	9,227	15,437	15,274
	12 mos.	6,068	379,538	3,739	400,058	378,361	58,761	51,657	5,542	74,784	65,894	23,976	8,884	127,899	291,413	264,664	72.8	70.0	108,645	37,167	59,137	55,677
Alabama Great Southern	3 mos.	529	10,229	47	10,701	10,110	1,760	1,515	238	2,090	2,166	739	227	3,024	7,700	9,325	72.0	92.2	3,001	1,021	834	—833
	12 mos.	529	39,810	371	42,119	39,732	6,680	7,081	957	8,169	7,735	2,857	908	12,829	30,965	33,733	73.5	84.9	11,154	3,668	4,488	362
Cinn., New Orleans & Tex Pac	3 mos.	415	13,324	4	14,065	13,615	1,958	2,227	249	3,508	3,258	1,324	322	3,909	10,355	10,016	73.6	73.6	3,710	643	1,652	2,515
	12 mos.	415	54,886	15	57,713	54,592	7,072	6,866	1,028	12,996	11,614	5,246	1,270	15,284	39,323	36,827	68.1	67.5	18,390	6,999	11,151	10,659
Georgia Southern & Florida	3 mos.	454	4,227	—	4,479	4,244	823	719	53	486	372	122	94	1,247	2,832	2,732	63.2	64.4	1,647	366	585	280
	12 mos.	454	16,656	—	17,411	16,159	2,483	2,481	189	1,570	1,057	396	375	4,824	10,011	9,204	57.5	57.0	7,400	1,324	2,518	1,428
Southern Pacific	3 mos.	11,615	221,477	2,239	230,977	233,724	31,126	27,084	6,309	45,351	43,457	15,239	3,900	88,167	183,269	182,611	79.3	78.1	47,708	23,223	10,521	18,393
	12 mos.	11,690	895,922	9,981	935,702	923,922	113,137	109,979	14,939	168,884	169,963	60,362	15,722	375,655	731,402	719,317	78.2	77.9	204,300	85,939	61,596	69,272
Texas & Pacific	3 mos.	2,134	22,050	—1	23,793	22,114	3,429	1,946	355	4,219	3,927	1,406	885	8,622	18,134	15,964	76.2	72.2	5,659	1,694	3,735	3,373
	12 mos.	2,088	85,784	61	91,860	85,845	12,873	10,751	1,236	16,495	15,534	5,418	3,428	35,078	71,784	65,025	78.1	75.7	20,076	5,992	10,100	9,202
Toledo, Peoria & Western	3 mos.	239	2,559	—	2,667	2,383	527	425	23	246	258	63	200	854	2,017	1,904	75.6	79.9	650	243	112	62
	12 mos.	239	9,899	—	10,314	9,500	1,670	1,453	73	1,100	961	244	778	3,595	7,922	7,245	76.8	76.3	2,392	857	411	481
Union Pacific	3 mos.	9,473	164,004	2,314	174,166	162,898	20,481	19,392	2,095	32,666	29,075	13,203	4,130	60,539	128,438	126,700	73.7	77.8	45,728	11,646	36,572	24,482
	12 mos.	9,473	630,153	9,786	669,617	630,407	75,510	72,893	8,168	124,957	112,336	51,816	17,111	240,985	502,753	477,072	75.1	75.7	166,865	54,683	114,416	81,553
Western Maryland	3 mos.	865	13,022	—	13,791	11,906	2,347	2,033	222	2,729	2,914	872	495	4,917	11,400	10,581	82.7	88.9	2,392	1,195	1,574	1,536
	12 mos.	865	51,522	—	54,424	49,442	8,059	7,591	849	11,954	11,546	3,605	1,904	20,188	45,472	41,933	83.6	84.8	8,953	4,624	7,438	6,646
Western Pacific	3 mos.	1,176	16,782	—	18,019	17,235	3,058	3,508	406	3,133	3,830	971	926	7,756	16,412	17,370	91.1	100.8	1,607	1,507	—1,339	—1,231
	12 mos.	1,176	66,283	261	68,512	67,764	11,076	10,598	1,716	13,963	14,092	3,965	3,690	29,510	64,475	62,532	94.1	92.3	4,037	5,641	—6,024	—44





CARS PASS ACI SCANNER (right), in Parsley yard, Montreal. ACI data are transmitted to computer and related devices (above). The system monitors individual switching moves.

Minicomputer works with ACI

Minicomputers—units that may cost $25,000, or even less—are being considered by several railroads for specialized tasks. While having limited data-processing capacity, minicomputers, because of their low price, can be used for many applications that may not be practical or economical for larger computers.

For example, Burlington Northern, Illinois Central and Penn Central are looking at minicomputers to provide intelligence and processing capability for input/output terminals. A mini computer in conjunction with communications equipment could provide a high-speed programmable terminal.

"C&O/B&O is currently using a Varian 620i as the control device for the off-line exchange of data between IBM magnetic tapes and Univac III magnetic tapes. The IBM tapes are NRZ 512/800 bits/inch density, while the Univac III tapes are phase modulated. 1040 bpi density," reports Dr. H. N. Laden, assistant vice president-research.

C&O/B&O is also planning to use a minicomputer in an instrumented rail inspection car. The computer will control data collection, analyze the data and record it on magnetic tape. The system also will produce a one-line printed summary of the analysis every mile and print out exception deviations that indicate possible emergency situations.

In addition, "C&O/B&O is evaluating minicomputers both for an independent data-collection system and as a communications front end for our larger computer centers," Laden says.

CP Rail has a minicomputer at Sudbury, Ont., that helps with yard-office operations and local accounting. This is a pilot project. Future plans for use of minicomputers will be studied on the basis of its performance. Santa Fe is also looking at minicomputers for yard-control functions.

Canadian National has just completed a test project involving two ACI scanners (at ends of Parsley interchange yard in Montreal) connected to a Hewlett-Packard 2114A computer. The system, tested at a CN-CP interchange yard, monitors individual switching moves and provides a net-movement report which eliminates duplicate material produced by cars making repeated moves past the scanners.

CN engineers designed and built an interface between the standard KarTrak ACI scanner and the H-P computer. Transmission of data from the scanner to the computer is at 200 bits/second. The CN communications transmitter also indicates field conditions—whether the movement is from CN to CP or vice-versa. The entire message is sent twice for each car to minimize misread labels.

Cost reduction, using one small computer with up to 12 scanners, is only one of the advantages of the system, notes a CN spokesman. In addition to providing a "clean" list of cars interchanged, the scanner-computer arrangement can perform logical operations which can be modified by merely changing the programming. Also, the minicomputer can output directly to a larger computer for system-wide train and car control programs. The low price of this minicomputer—$12,800 for the H-P 2114A with 8k memory—makes it feasible to incorporate a standby computer into the system.

When Canadian National Telecommunications (a public communications company) receives commercial telegrams via telephone, an operator types the message on a keyboard. It is simultaneously displayed on a cathode ray tube, so it may be repeated to the caller. A minicomputer controls the keyboard-CRT terminal and inputs the telegram into the CNT message switching system for delivery.

While railroad use of minicomputers might still be considered "mini," consideration is being given to using them for handling data processing locally before transmission is made to large central computers. "Hopefully, we can eliminate some of the garbage-in, garbage-out by using minicomputers along with I/O terminals," comments one road's data-processing director. ■

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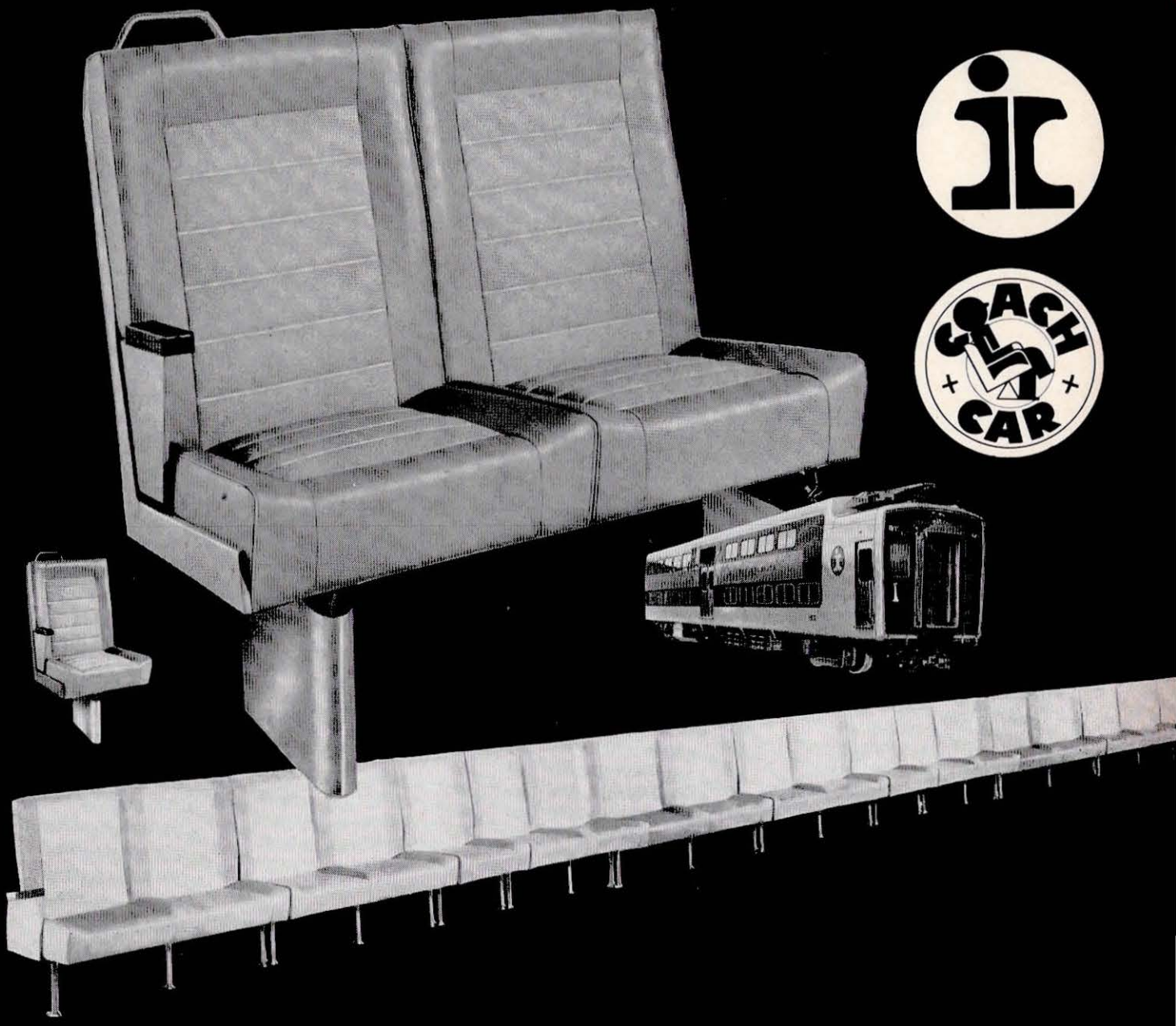

Commuter service requirements in seating, are durability, comfort and appearance. Seats manufactured for the New Illinois Central Double Decker Cars met these requirements. They are available in many flexible combinations and arrangements . . . 1-2 or a full car length.

Coach and Car is the oldest continuous manufacturer of sturdy, low maintenance coach seats. Please call us for your seating problems.

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This agreement is between The Timken Company (hereinafter called the "Company") and_____

_____

(hereinafter called the "Customer"), and is made effective _____ **19**___, **In consideration of the purchase by the Customer, on or after the effective date of this Agreement, of Timken® "AP" bearings, for use on railroad freight car applications, the Company hereby agrees as follows:**

1. On any Timken "AP" bearing assembly purchased by the Customer during the term of this Agreement for use on freight car applications, the Company will replace, free of charge, any cones or cups which, within 84 months of the original date of manufacture etched or stamped on the bearing, upon inspection in a railroad-owned repair shop show evidence of Brinell or fatigue due to normal wear or loading to the extent that they are not suitable for continued service under the standards set forth in the Roller Bearing Manual of the Association of American Railroads as of January 1, 1969. Other parts of the bearing assembly are covered by the warranty referred to in paragraph 6 below.
2. The provisions of paragraph 1 shall apply only to the first disassembly of any individual bearing assembly, and shall not apply to subsequent inspections of a bearing assembly for which any parts have previously been replaced by the Company pursuant to paragraph 1 and reassembly has been done by the Customer or others.
3. The provisions of paragraph 1 above shall also apply, subject only to the 84 months' limitation, to any Timken "AP" bearings purchased by the Customer prior to the effective date of this Agreement.
4. To qualify for replacement of parts under this Agreement, the following requirements must be met, to the best of the knowledge and belief of the Customer and to the satisfaction of the Company:
   a. The condition requiring replacement must be attributable to the quality of material or workmanship in the manufacture of the bearing, and must not be due to damage from derailment, fire, immersion in or exposure to water.
   b. The complete bearing assembly (less axle end cap assembly) which has been preinspected by the railroad customer and judged to qualify under the conditions of this warranty shall be kept as a unit, cleaned and available for inspection by an authorized Company representative at an A. A. R. approved railroad-owned roller bearing repair facility equipped with all A. A. R. required tools and inspection gauges.
   c. An authorized Company representative may be requested by a Customer railroad to review, on at least one week's notice to the nearest Company Railroad Division office, a minimum of ten preinspected qualifying bearings.
   d. The bearing assembly must have been in use on a freight car operated and maintained in accordance with loading and other rules and standards of the Association of American Railroads for cars in interchange service.
   e. The tools referred to in paragraph 4b must have been used as described in the Roller Bearing Manual of the Association of American Railroads for the inspection, disassembly, reassembly or other maintenance of the bearing assembly.
   f. There must not have been any previous disassembly, modifications or alterations of the bearing assembly, unless authorized in writing by the Company, nor any improper repairs or any substitution in the bearing assembly of bearing components made by another manufacturer.
5. Following inspection by the authorized Timken Company representative, a signed warranty authorization will be issued in duplicate by the Company representative and signed by the designated representative of the railroad for the qualifying replacement material, one copy of which is to be forwarded to the Company with a Customer no charge purchase order.
   a. Those parts which have been authorized for replacement shall be destroyed in the presence of or disposed of as otherwise directed by the Company representative.
6. This Parts Replacement Agreement supplements the warranty set forth in the "Conditions of Acknowledgement and Acceptance of Your Purchase Order," under which the bearings were originally sold by the Company to the Customer.
7. In the event of any dispute concerning the qualification of a bearing for replacement of parts under this Agreement, the necessity for replacement of particular parts, or any other question concerning the application of this Agreement, the decision of the Company will be final.
8. This Agreement is for a term of ____ months from and after the effective date, and may be extended for successive periods of twelve (12) months by notice in writing from the Company to the Customer. Following the termination of this Agreement, any bearing assembly to which this Agreement became applicable during its initial term or any extension will continue to be eligible for replacement of parts in accordance with the provisions hereof.

IN WITNESS WHEREOF, the Company has executed and delivered this Agreement to the Customer as of the effective date specified above.

Approved:
General Manager - Sales or
Assistant General Manager - Sales
Railroad Division
The Timken Company

THE TIMKEN COMPANY

By _____
District Manager, Railroad Division

our Expanded ent Agreement.

ude bearings your shop.

Under our present Parts Replacement Agreement, you may never pay for specified parts replacement during the first seven years of operation.

It not only protects Timken® "AP" bearings made today until seven years from today—but has the unique feature of covering every "AP" bearing made up to seven years ago.

This Agreement was initiated because of the excellent performance of our "AP" railroad bearings. It represents a successful program and a source of savings to railroads across the nation.

Now we're expanding our PRA to include railroad "in-shop" inspection. So, the next time you have ten or more qualified bearings, give The Timken Company office nearest you a call. One of our Service Engineers will be out to personally inspect them in your shop.

Extra service we can promise, because we service a better bearing.

TIMKEN®
REGISTERED TRADEMARK
TAPERED ROLLER BEARINGS

They're worth more in the long run.

Circle 15 on coupon page 41

IC's Otto Zimmerman: For bigger profits, think small

There's a sizeable body of literature which might be classified under "bright new era ahead." And it would be easy to put the recent comments of a veteran Chicago-area railroad man in that classification, except for one thing: The comments came from Otto H. Zimmerman, Illinois Central's senior vice president-operations and a man whose career has been based more on the practical than the visionary.

Zimmerman is looking toward basic changes in commercial strategy, and he leans heavily on a familiar theme at IC: Rail service has become too capital-intensive, and a lot of people have been trapped by the complications of thinking which such an operation creates.

It is obvious, he declares, "that industry strategy in recent years has uncritically committed railroads to tonnage that can be described as long-heavy-slow. The long haul and its corollary statistic, the ton-mile, have blunted the truth for many rail managers. They have also given artificial comfort to many union leaders, who could claim 'productivity' betterment from the same figures. The truth is, of course, that they are both deluded. The manager is deluded if he thinks that rising ton-miles and longer hauls are a substitute for adequate cash generation from operations. The union leader is deluded if he thinks that such hollow indices really obscure the fact that rail employment has declined 60% since World War II."

But Zimmerman asks, what if strategy is changed? What if such innovations as Rent-A-Train and minitrain and other dedicated loop services really catch on?

First, operations would become less capital-intensive. Specific new services would become much less capital-intensive. New services would have a far better net-to-revenue ratio, and over-all operations would become more profitable. Operating employment would be increased. Service should show substantial improvement, from better equipment utilization and the by-passing of terminals: "Specifically, such new service would be dramatically better, with shippers and receivers able, for the first time, to schedule rail service by clock rather than by calendar."

This type of operation would require more equipment, and new types of equipment: "It quickly becomes apparent that a move toward a short-light-fast strategy would soon be reflected in hardware. Small locomotives of special design, fast-dumping equipment and flat cars with interchangeable superstructures are obvious directions for this kind of direct, tailored service."

And, while IC's experimental work thus far has been aimed primarily at new business, Zimmerman adds this significant observation: "Operating officers contemplating the effect of such operations 'on top' of standard operations are even more excited at the glimpse they get of the railroads' future should these labor-intensive and less capital-intensive activities take hold, and should the railroads and their unions start using such techniques for present business, too."

Zimmerman's comments were directed to an audience of railway suppliers—and he added this, with respect to suppliers' obligations and opportunities:

"Significant changes and improvements would result in better equipment.

"When you have equipment getting one revenue turn a month, you aren't too disadvantaged when it's shopped for a week or two. When you're getting 20 or 30 turns a month from such labor-intensive services as we're talking about, you better believe me when I tell you we'll be tough to deal with if equipment isn't in service all the time. We'll need significantly better equipment when shopping becomes too expensive. I'm sure we'll have to pay more for such equipment, but it will pay us to do so."

And what's in it for the supplier? "If the railway supply companies stay loose and responsive to the evolutionary change ahead, they will, in my opinion, prosper as they have never prospered before. The railroads and their men and the unions that represent those men are getting a lot closer to finding their way toward a better place in the American economy. And the opportunity for change that I outlined? I was describing the possibility for one medium-size railroad, IC. Multiply that opportunity 20 or 30 times, and you get some idea of what an exciting future can be around the corner for us—if we can just surmount the present crisis."

Zimmerman's long-range, over-all forecast stays on an upbeat: "We have a great industry. We do useful work. And we have a bright future if we can stick together to get our story across to the public and Congress.

"We have a raft of bright, committed young managers who are revolutionizing the role of the railroad in the U. S. economy—and who are more and more unwilling to accept the role of transportation's step-children."

This announcement appears as a matter of record only.

March 31, 1971

$6,750,000

Delaware and Hudson Railway Company

Secured Notes

The Company was assisted by the undersigned in arranging this financing in order to meet a maturing mortgage bond issue.

Salomon Brothers

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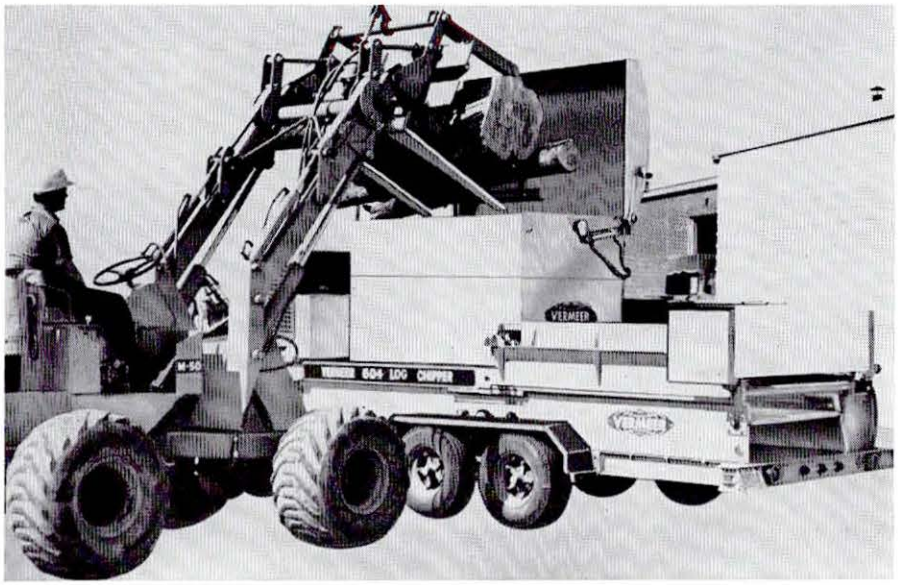
New Products Report



New machine quickly reduces ties to chips (RA-1)

The 604 Log Chipper is a new, heavy-duty machine that can chew logs into chips in minutes. The machine, powered by a 391-cu.-in. Ford engine or a 453 GMC diesel, can handle railroad ties, bulky logs, old lumber, decayed telephone poles, or any other piece of wood up to four feet in diameter, approximately six feet long.

Featuring a high-speed, 8-in. rotary cutting cylinder, the 604 Log Chipper contains the logs in a heavy-duty hopper which hydraulically feeds them over the cutting cylinder at 20 cycles per minute. The cylinder, which features 45 carbide-tipped cutting teeth, chews the logs to chips at speeds up to 1,800 rpms. Remnant chips are carried by conveyor to the front of the unit and deposited on a second conveyor, which deposits the chips in a truck or on a pile.

The 604 Log Chipper, easy to transport from job to job, features a trailer-type axle system which lets the operator move in close, eliminating unnecessary log hauling. *Vermeer Mfg. Co.*

Automatic door (RA-2)

A compact, self-contained, plug-in package converts most manual doors to automatic doors simply and inexpensively. The lightweight conversion package, called Monopack, will automate most single or double swing doors; interior or exterior, aluminum/glass, wood, metal or synthetic material. Two basic models provide installation flexibility. The "visible" model simply attaches to door transom and door; the "concealed" model replaces the transom and is completely out of sight. Both models plug into standard outlets.

Movement of passengers, freight and luggage through railroad, airline and bus terminals is made quicker and safer with Monopack automated doors. Operation cost savings have been significant after installation because of lower air-conditioning and heating costs, less door damage, fewer injuries and less dirt infiltration. *Door Operating Equipment Division, Stanley Works.*

For the record

The length of the machined beam in Sand Measurement Corp.'s weigh-in-motion scale was reported inaccurately on page 48 of the Feb. 22 issue. The beam, used in place of a section of rail, is 45 inches long (not 45 feet long, as the item erroneously said).

Disc fasteners (RA-3)

The Hook and Loop method of Velcro Hook and Loop tape fasteners are incorporated in the Velcro Pop-In disc fasteners designed for quick application wherever opening and closing of mated surfaces is required, as in door and wall panels, protective covers and interior trim. No bonding, riveting or stapling is necessary, nor are any tools needed. The discs are made of glass-

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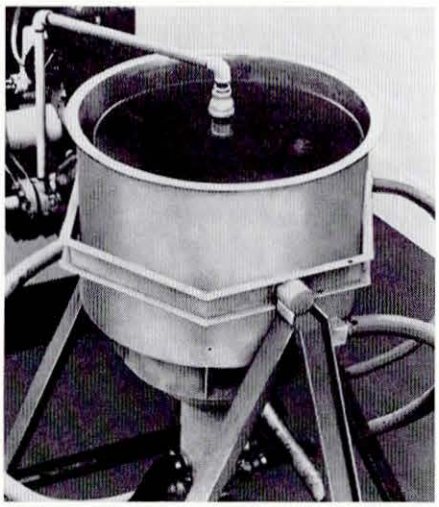
reinforced nylon to which is welded nylon loop and hook or arrowhead components. Retaining studs accommodate the normal 1/4-in. hole and provide for secure retention. The discs, which can be color coded, are said to be non-conductive; to not rust or corrode; and to be unaffected by oils or standard cleaning agents. *Velcro Corp.*

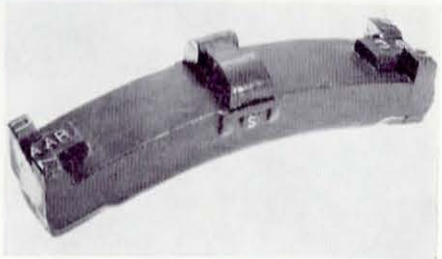
Sanitary powder **(RA-5)**

The bacteriostatic properties of Racasan Readypac powder are said to keep toilet bowls clean and odorless while assuring free functioning of moving parts in circulating systems. According to the manufacturer, the powder shows no effects on metals or plastics, remains fully effective in the presence of detergents, and is not absorbed by and inactivated on particles of solid matter in the slurry. *Rhodia, Inc.*



Oil separator **(RA-6)**

Oil-water separators, rated at flows of 72,000 and 1,000,000 gal. per day, use exclusive hydraulic processes for continuous separation. The separators have no moving parts and are said to be capable of reducing up to 15% of floating oil in an oil and water influent to between 10 and 50 parts per million in the clear water effluent discharge. Oil that is collected separately approaches a 100% water-free condition and may be reused. *American Process Equipment Corp.*



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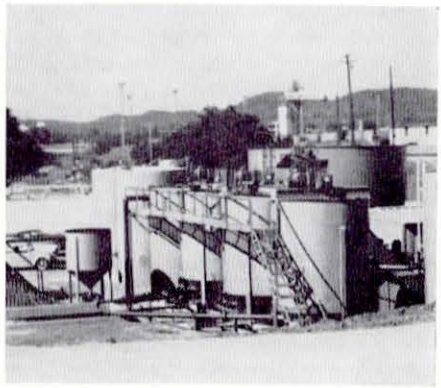
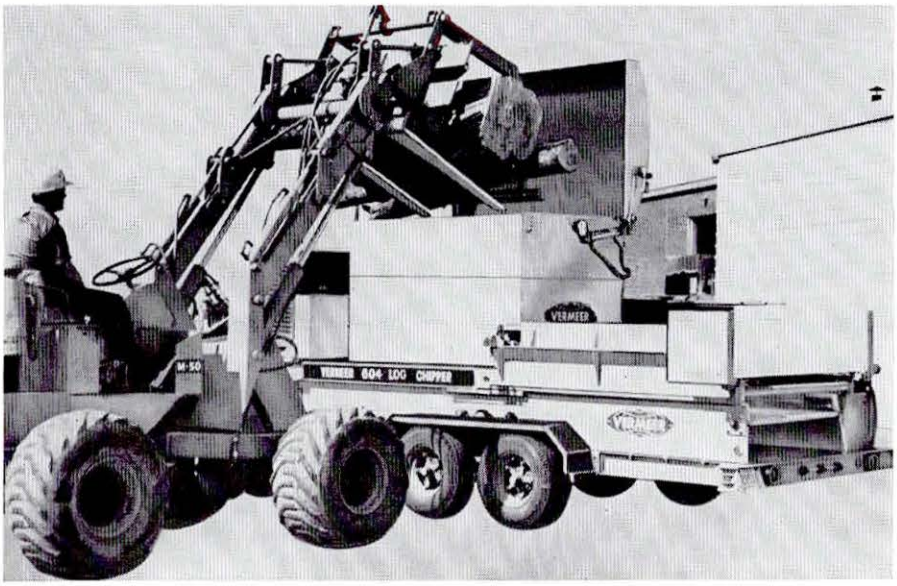


Waste water treating plant **(RA-8)**

The automated 100,000-gallon-per-day pollution abatement facility now in 24-hr operation at the Radnor Yards of the L&N is treating waste water streams from engine washing facilities, engine fueling and sanding aprons, and diesel shop and enginehouse pit drainage. Content of the waste water includes emulsified oils, sand, silt and grease and water soluble alkaline materials. The clean effluent water which meets the State Pollution Control Board standards is discharged into a nearby stream. Free oil recovered is used or sold, while sand and solids are acceptable for landfill. *International Pollution Control, Inc.*

New Products Report



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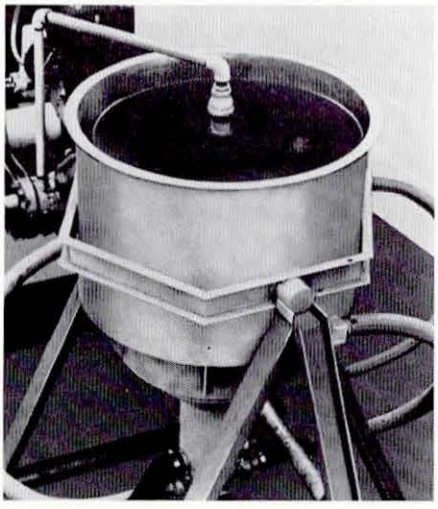

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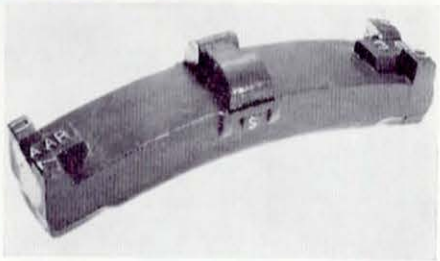

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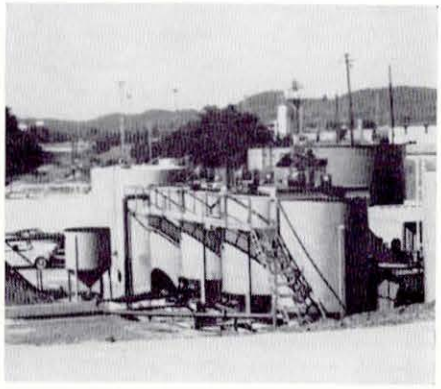

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2....DURABILITY
3....MINIMUM MAINTENANCE
4.....ECONOMY

4 good reasons for specifying NTN Bearings

Quality that results from 50 years of research and experience has made **NTN Bearings** the choice of railways around the world — including Japan's famous ultra high-speed Tokaido line.

Manufactured by an exclusive rolling and forging technique, **NTN Bearings** are noted for strength and endurance.

They are designed to withstand heavy loads and undergo deflections without overstressing their components.

Yet **NTN Bearings** are light and easy to install and maintain, important factors in today's cost-conscious business climate.

And they are backed by a 500,000 mile guarantee, with all the confidence of a company that has provided:

"The best in bearings for half a century."

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Phone: (312) 583-4422

NTN BEARING CORPORATION OF CANADA, LTD.
40 Ronson Drive, Unit K, Rexdale, Ontario

Representative in Canada:
CANADIAN BRONZE CO., LTD.
999 DeLorimer Avenue
Montreal 24, Quebec, Canada
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Manufacturer: The Toyo Bearing Mfg. Co., LTD.

Circle 17 on coupon page 41

BURRO POWERS THE WAY to Extra Earnings

Model 40 BURRO, equipped with automatic folding leads, shown driving piles with a diesel pile hammer.

RUGGED!

VERSATILE!

Burro Cranes and equipment get the job done fast and efficiently, on the line, in the yards or Stores Department. Pile driving, ditching, laying welded rail, or lifting track panels are but a few of the many jobs handled quickly and economically by the BURRO.

BURRO Rail Threader handling continuous welded rail.

Model 40 BURRO Ditcher supplies its own locomotive travel and work power. Loads dump cars, furnishes necessary air for dumping.

Write for complete information and Burro Crane Bulletin No. 51

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FEDERAL SIGN & SIGNAL CORPORATION

"THE FUTURISTS"

2700 West 36th Place
Chicago, Illinois 60632

Circle 18 on coupon page 41

People in the News

AMERICAN RAILWAY CAR INSTITUTE.—**Robert C. Ortner,** president, Ortner Freight Car Co., elected chairman of the board of ARCI, succeeding **E. T. Ahnquist,** president, Pullman-Standard. **J. G. White,** manager of sales, railroad products, Bethlehem Steel Corp., re-elected ARCI vice president. **W. A. Renz,** the permanent ARCI staff officer, re-elected president, secretary and treasurer.

ASSOCIATION OF AMERICAN RAILROADS.—**John J. Robinson** appointed assistant director, AAR's Operating–Transportation Division, Washington.

Max R. Sproles appointed executive director—highway—rail programs, Operations and Maintenance Department. Mr. Sproles will provide liaison and coordination between the rail industry and federal, state and local governments in the areas of highway—rail intersection problems, urban planning and transportation needs studies.

BURLINGTON NORTHERN.—**Louis W. Menk** elected chairman of the board, effective May 1, to succeed **John M. Budd** (RA, March 29, p. 25). Mr. Budd will continue to serve BN as a board member and chairman of the finance committee. Mr. Menk's successor as president is **Robert W. Downing,** executive vice president, who will be succeeded by **Norman M. Lorentzsen,** vice president-operations. Mr. Lorentzsen's successor is **Ivan C. Ethington,** regional vice president, Chicago, who in turn is succeeded by **Donald H. King,** vice president, Twin Cities region, Minneapolis. **Wilburn R. Allen,** vice president-trucking, succeeds Mr. King. **Worthington L. Smith,** regional vice president, Seattle, named to the newly created position of vice president-marketing planning, St. Paul. **Ralph L. Merklin,** assistant vice president-marketing services, St. Paul, succeeds Mr. Smith. **Harry J. Surles,** assistant vice president-transportation, St. Paul, becomes regional vice president, Portland, to succeed **N. S. Westergard,** who retires May 1 after 47 years' service. Mr. Surles' successor is **Richard G. Johnson,** assistant vice president-operations, Chicago. **James D. Nankivell,** assistant vice president-sales, appointed to the newly established position of vice president-intermodal sales. **John L. Robson,** vice president-merger development, retires May 1.

Thomas F. Hoffman, superintendent of the car department, St. Paul, named superintendent, St. Cloud shops, St. Cloud, Minn., succeeding **Leo F. Zierdan,** retired.

Charles E. Able, assistant to the regional vice president, Chicago, named regional manager-transportation there. Mr. Able's successor is **Earl J. Currie,** assistant superintendent, Chicago division, Aurora, Ill.

W. J. Condotta, operations manager,

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Bonds. The offer is made only by the Circular.

$50,000,000

Seaboard Coast Line Railroad Company

Consolidated Mortgage 8.35% Bonds, Series A, due March 15, 1996

Interest payable March 15 and September 15

The issuance and sale of these Bonds are subject to authorization by the Interstate Commerce Commission.

Price 100% and Accrued Interest

Copies of the Circular may be obtained in any State from only such of the undersigned as may legally offer these Bonds in compliance with the securities laws of such State.

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Incorporated

BLYTH & CO., INC. — *THE FIRST BOSTON CORPORATION* — *DREXEL FIRESTONE*
Incorporated

duPONT GLORE FORGAN
Incorporated — *EASTMAN DILLON, UNION SECURITIES & CO.*
Incorporated

GOLDMAN, SACHS & CO. — *HORNBLOWER & WEEKS-HEMPHILL, NOYES*

KIDDER, PEABODY & CO.
Incorporated — *MERRILL LYNCH, PIERCE, FENNER & SMITH*
Incorporated

PAINE, WEBBER, JACKSON & CURTIS
Incorporated — *WERTHEIM & CO.* — *WHITE, WELD & CO.*

DEAN WITTER & CO.
Incorporated — *BACHE & CO.*
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Incorporated

March 25, 1971.

Last call – just time to make it!

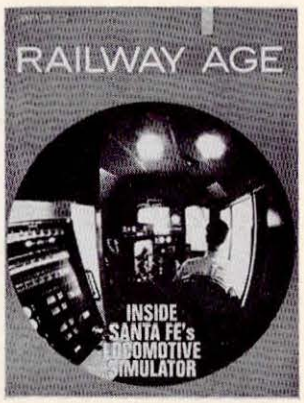
Get aboard the big Mechanical Division Special with the industry's top reporters

The above four, and other Railway Age and Railway Locomotives and Cars editors, will be serving up the news for the annual meeting of the AAR Mechanical Division at the Sheraton Chicago on June 23 and 24. There will be Mechanical Division meeting features, reports on equipment designs and new maintenance procedures. Both magazines will have extra distribution at the meeting. And this year the reports on car and locomotive trucks and suspensions will have special importance. . .

The spotlight is on riding qualities of equipment

The AAR has special groups studying the relation of equipment with track and attempting to coordinate the performance of the components of today's car trucks. One railroad has sponsored a dynamic study of the standard truck in an overseas laboratory. The Department of Transportation's new Colorado laboratory will give new opportunity to investigate dynamic problems on this continent. The problems of ride have plagued some of the new high speed trains and one mechanical officer has described the freight-car truck as riding "rough at any speed." Obviously a satisfactory suspension must have a range of capabilities. A number of improvements have been introduced but most introduce the added complication of higher cost.

These two give you unparalleled coverage at a bargain rate



Railway Age is a horizontal management semi-monthly that reports and interprets developments broadly interesting to all (in not-too-technical language). It gives you both a railroad's general management and the upper levels of its Mechanical Department management.

Railway Locomotives & Cars is a technical monthly —a specialized, vertical, departmental publication. It gives you the Mechanical Department's top management and the men on its lower management and supervisory levels. It talks their special language.

Take advantage of this bargain opportunity

With the Railway Age Group's Industry Marketing Rate you can run two campaigns - one in Railway Age and one in Railway Locomotives & Cars - for only slightly more that it costs to attempt the job with one campaign in the monthly that tries to be all things to all people (including thousands with utterly different problems and interests in the Engineering Department and Signaling and Communications Department).

Thus you get full management coverage, deep specialized coverage in the Mechanical Department - and double the impact at the highly important level where middle management and specialized Mechanical Department administration overlap.

Plan now to take full sales advantage of this opportunity. Closing dates. . .RA: May 31; RL&C: May 10.

The Railway Age Group, 350 Broadway, N.Y.C. 10013.

During our twenty years of progress

N&W

Has placed five orders totaling

282

INTERNATIONAL CABOOSES

We're celebrating 20 years of caboose building. Two decades devoted to a consistent program of building safer, more comfortable, more serviceable caboose cars. Always with the emphasis on *quality*. Norfolk & Western is one of 103 railroads which—over these 20 years—have demonstrated their confidence in our abilities. In the same period, Chicago and Northwestern placed 8 orders for 237 cabooses and the Soo Line 4 orders for 55 units. We're grateful to them all.

International Car co.

835 Englewood Ave./Buffalo, New York 14223
Representatives: M. H. Frank — Cleveland, O. • Prest Company — St. Paul, Minn. • R. B. Hornberger — San Francisco, Cal. • F. E. Ross, Jr. — St. Louis, Mo. • E. J. Hasten, Jr., W. B. Reed — Chicago, Ill.
A Part of NATIONWIDE INDUSTRIES, INC.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Circle 21 on coupon page 41

Billings, Mont., appointed superintendent, transportation, St. Paul, **Clark Hungerford, Jr.,** director, industrial engineering, St. Paul, succeeds Mr. Condotta, and in turn is succeeded by **W. R. Stockton.**

J. R. Masters, assistant manager, merger development, named assistant chief engineer, maintenance, St. Paul.

CANADIAN NATIONAL.—D. L. Fletcher, assistant general superintendent of transportation, Atlantic Region, appointed general superintendent of transportation, Prairie Region, Winnipeg, Man., succeeding **C. E. Reynolds,** transferred to the Great Lakes Region, Toronto, to replace **R. G. Messenger,** promoted. **R. W. Bowman,** superintendent transportation, Toronto, Area, appointed assistant general superintendent transportation, Great Lakes Region, Toronto, succeeding **J. J. Campbell,** retired. **L. J. Dennis,** superintendent, succeeds Mr. Bowman.

D. A. Sprigs, assistant purchasing agent, Montreal, appointed purchasing agent, Prairie Region, Winnipeg, Man., succeeding **E. N. Bailes,** named purchasing agent for special projects, Winnipeg.

E. W. Cullen, system liaison officer for grain transportation, Winnipeg, appointed administration officer, Saskatchewan Area, Saskatoon, Sask.

CANADIAN NATIONAL-GRAND TRUNK WESTERN.—Charles C. Lockert, freight sales representative, Memphis, Tenn., named district sales manager there.

CHICAGO & NORTH WESTERN.—J. A. Barnes appointed assistant chief engineer maintenance-planning; **L. F. Fox,** assistant chief engineer maintenance-operations; **T. M. Evans,** assistant chief engineer-communications and signals; **S. J. Owens,** director-public works engineering; **J. L. Perrier,** director-special projects engineering.

CLINCHFIELD.—B. E. Burton named assistant engineer-surveys, Erwin, Tenn.

DEPARTMENT OF TRANSPORTATION.—Herbert F. DeSimone, Attorney General for Rhode Island, appointed assistant secretary for environment and urban systems, Washington, D.C., succeeding **J. D. Braman,** resigned.

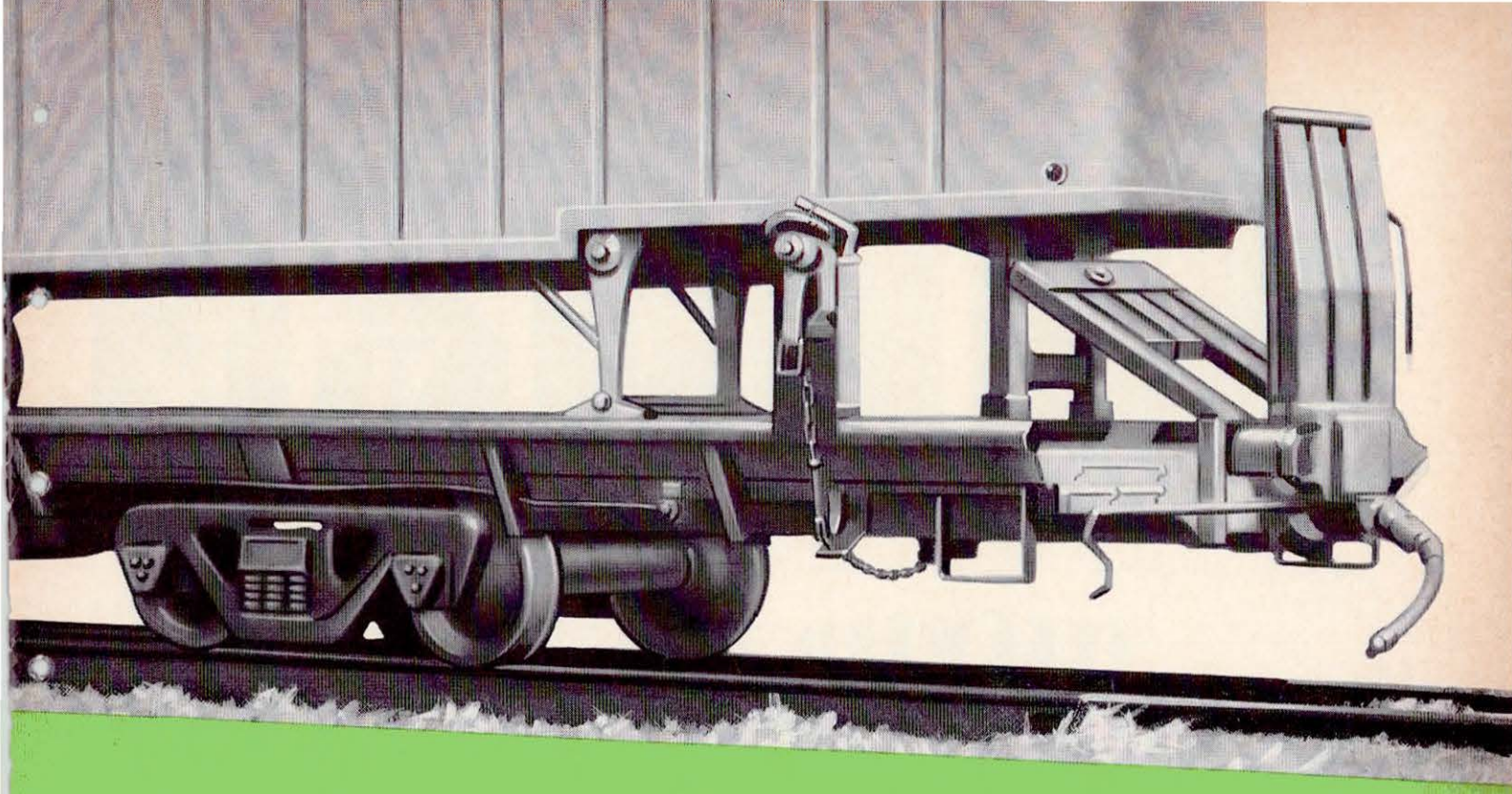
William J. Burns appointed director, Office of Hazardous Materials. He was formerly vice president, TriState Motor Transit Co.

Laurence J. Burton, Congressman, First District State of Utah from Jan. 1963 to Jan. 1971, appointed director, Office of Congressional Relations, succeeding **Robert F. Bennett.**

ERIE LACKAWANNA.—Raymond M. Bowers appointed assistant terminal trainmaster, Chicago-Hammond Terminal.

W. J. Abrams appointed supervisor piggyback operations, Croxton, N.J. **Wayne Wagner** appointed assistant supervisor, piggyback operations, and **James R. Ledford** named assistant terminal manager, piggyback operations, both at Croxton.

Donald Campbell appointed manager, suburban traffic, Hoboken, N.J., succeeding **Robert H. Taylor,** who retired Dec. 31, after more than 47 years of service. **Norb-**



THE CLOSER TO THE GROUND, THE HIGHER THE PAYLOAD.

ASF LOW LEVEL RIDE CONTROL® TRUCKS

Tailor made for piggy back service.

ASF engineering provided the first low clearance trucks for piggy back service. This pioneering innovation helped railroads increase the flexibility of piggy back shipments, producing more business for the industry. Be sure to remember all the fine ASF railroad products the next time you are specifying.

From "THE STRONGER THAN STEEL PEOPLE"

American Steel Foundries

ONE OF THE Amsted INDUSTRIES

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In Canada: IEC-Holden, Ltd., Montreal, 376, Quebec

Circle 20 on coupon page 41

Louis W. Menk
BN

Robert W. Downing
BN

N. M. Lorentzsen
BN

Ivan C. Ethington
BN

Ralph L. Merklin
BN

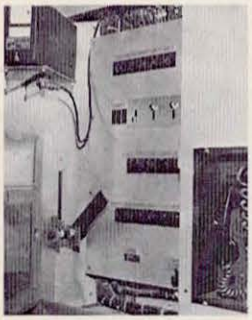
Harry J. Surles
BN

TELEWELD
INC.

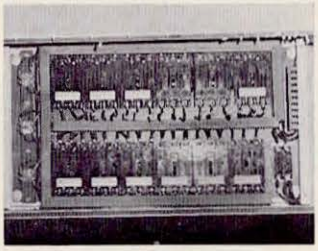
RAILWAY UTILITY COMPANY DIVISION

Designers and Manufacturers of Components for Mass Transit Cars

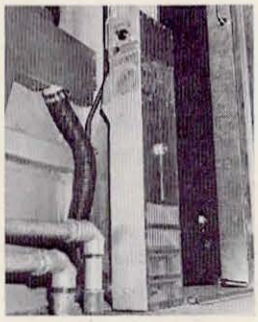
DESTINATION SIGNS (MANUAL, MOTOR DRIVEN AND REMOTE CONTROLLED)
RUN NUMBER SIGNS • CAR BODY HEATERS
CAB HEATERS and DEFROSTER ASSEMBLIES
CIRCUIT BREAKER PANELS • SWITCH PANELS
PANTOGRAPH GATES • END GATES



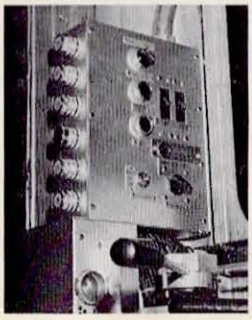
ELECTRIC PANEL



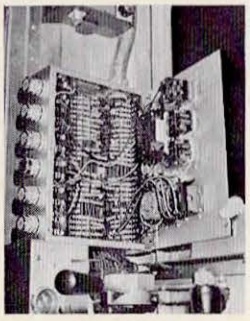
INTERIOR
UNDER-CAR CIRCUIT
BREAKER PANEL



CAB HEATER &
DEFROSTER ASSEMBLY



EXTERIOR



INTERIOR
ENGINEMAN'S SWITCH PANEL

REPRESENTATIVE ITEMS DESIGNED AND MANUFACTURED FOR CARS BUILT BY PULLMAN-STANDARD FOR N.J.D.O.T. (ERIE-LACKAWANNA)

TELEWELD
RUCO DIVISION
416 NORTH PARK STREET
STREATOR, ILLINOIS 61364

Circle 22 on coupon page 41

ert F. Crippen appointed district manager, Cleveland.

ILLINOIS CENTRAL.—Norman E. White, general marketing manager, Chicago, retired Mar. 20 after more than 44 years of service.

JERSEY CENTRAL.—Charles H. Allen appointed chief engineer, Newark, N.J., succeeding **B. J. Minetti,** retiring. Mr. Allen was formerly with the **Penn Central.**

LOUISVILLE & NASHVILLE.—Harold L. Breeden named project engineer, Louisville.

MILWAUKEE.—John M. Fortman, manager of automobile and implement sales, named manager of national accounts-automotive and implement industries. **Howard A. Springer,** manager of grain sales, appointed manager of national accounts-grain industries. Messrs. Fortman and Springer will continue to have their headquarters in Chicago.

Stephen J. Barry, assistant superintendent, St Paul, transferred to the Coast division, Portland, Ore.

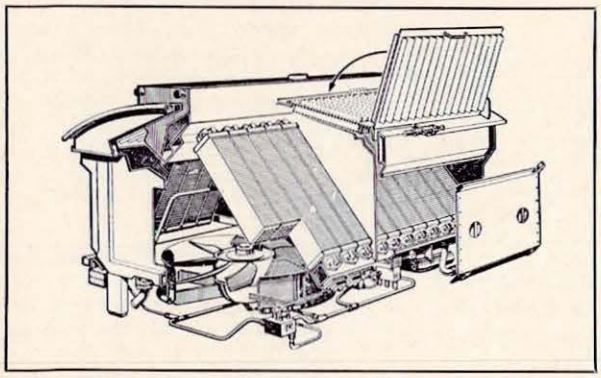
MISSOURI PACIFIC.—James W. Gessner named general manager, Eastern District, Little Rock, Ark., succeeding **George T. Graham,** appointed assistant to vice president-operations, St. Louis.

Daniel C. Conway, superintendent, Red River division, Longview, Tex., named superintendent-transportation equipment, St. Louis. **Kermit M. Converse,** superintendent, Dallas-Fort Worth Terminal division, named to the newly created position of director of terminals, St. Louis.

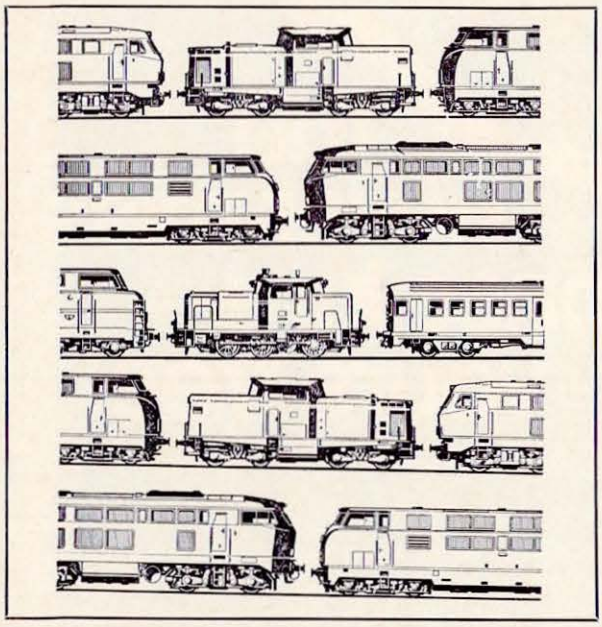
NORFOLK & WESTERN.—Charles G. Hammond, Jr., assistant vice president-operations, Roanoke, Va., named assistant vice president-engineering. **L.A. Durham, Jr.,** assistant chief engineer, named chief engineer. **John T. Hiner,** assistant chief engineer-maintenance, named senior assistant chief engineer. **E.Q. Johnson,** chief engineer since 1964, has resigned. **Preston P. Dunavant,** principal assistant engineer, named assistant chief engineer. **Emmett F. Manley,** engineer structures, appointed senior engineer-structures. **W. Battle Cole,** division engineer, Bluefield, W. Va., named senior engineer-construction. **Harry C. Thacker,** project engineer, Bluefield, becomes division engineer there. **James Q. Fender,** office engineer, Roanoke, appointed assistant to chief engineer there. **Ralph**

BEHR

Cooling Units with Hydrostatic BEHR Fan Control System in Railbound Vehicles



The illustration shows a BEHR top-mounted unit for the DB Type 218 (V 164) Diesel locomotive used in travel and cargo service. This model features a primary and a secondary circuit with cooling outputs of 1,000,000 kcal/h and 304,000 kcal/h, respectively, An engine power of 2,400 hp at 1,500 rpm permits a maximum speed of 120 km/h.

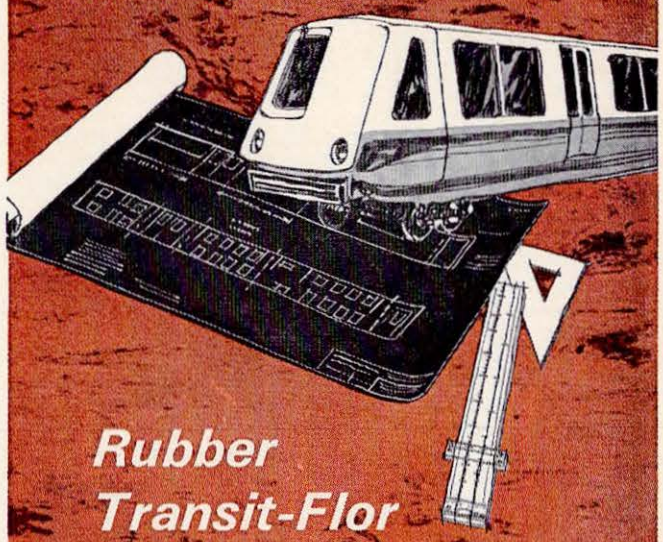


For full information on our range please ask for our brochure "BEHR Cooling Units with Hydrostatic Behr Fan Control System".

SUDDEUTSCHE KUHLERFABRIK JULIUS FR. BEHR
7000 Stuttgart 30, Phone 89551 Telex 723743

Circle 23 on coupon page 41

INTERIOR DECOR BEGINS WITH THE FLOOR



Rubber Transit-Flor Features "Decorator-Durability"

Eye appeal and wear resistance make the ideal combination for modern transit flooring. Decorator Transit-Flor offers 20 marbleized color patterns, plus 12 terrazzo styles, to blend or contrast in new or existing interiors. Low-maintenance rubber stands up to grueling wear, foul weather . . . and even supplies best resistance to cigarette scorch. Rubber's natural resilience provides underfoot safety . . . in double-grooved rib or smooth surface flooring. Step treads come in blending or matching colors.

Write for prices and FREE color samples

THE R.C.A. RUBBER COMPANY
an Ohio Corp. of Akron, Ohio

1833 E. Market St., Akron, Ohio 44305
The Leader in Rubber Transit Flooring & Step Treads

Circle 24 on coupon page 41

S. Bryan, Jr., test engineer, promoted to research and test engineer, succeeding **R. M. Stickley, Jr.,** retired.

R. Alan Brogan, research analyst, appointed assistant director, research department.

PENN CENTRAL.—Has merged its Philadelphia and Harrisburg divisions into a new unit which will be headquartered in Harrisburg and called the Harrisburg Division. The consolidation is being made "to effect greater efficiency and service improvements." **Robert A. Herman,** former superintendent, Philadelphia, heads the expanded organization. **Charles B. Lockwood,** assistant superintendent, will continue at Philadelphia, with operational responsibilities for the road's freight rail complex there. PC's regional freight sales staff at Philadelphia will continue without change.

Joseph M. Ostrow, assistant vice president-system development, Philadelphia, appointed assistant vice president-planning coordination, succeeding **Albert M. Schofield** (RA, March 8, p. 62). **Michael D. Sims,** director-business systems (planning and special projects) promoted to succeed Mr. Ostrow.

Richard C. Johnston, general mechanical superintendent-staff, Philadelphia, appointed general mechanical superintendent-locomotive, succeeding **James J. Wright,** resigned. **Charles R. McKenna, Jr.,** general superintendent-transportation, Northeastern Region, New Haven, named director-equipment performance.

Thomas B. Graves, Jr., director-market planning and research, Philadelphia, advanced to assistant vice president-automotive to head the new Automotive Department established to provide pricing, sales and marketing functions to serve automotive oriented industries.

John H. Hildenbiddle, Jr., director-industrial engineering, Philadelphia, appointed executive representative, succeeding **Charles I. Ingersoll,** resigned.

John F. Bomster appointed special counsel on the staff of the PC trustees.

RICHMOND, FREDERICKSBURG & POTOMAC.—**Ronald Radke** appointed assistant to director of personnel, Richmond. He was formerly employed in the labor relations department, **Penn Central,** Philadelphia.

ROCK ISLAND.—**Thomas I. Megan,** assistant general counsel, named general counsel, Chicago. **William C. Hoenig,** senior assistant general manager, Kansas City, Kans., appointed general manager there. **Lee Houts,** general attorney, Chicago, named assistant general counsel there.

Wayne H. Lane, regional manager-pricing, named assistant manager-pricing (grain), Chicago, succeeding **John E. Edwards,** retired. **William D. Davis,** assistant regional manager-pricing, becomes regional manager-pricing (grain), Chicago.

C. James Taylor, director of management services, elected comptroller, to succeed **William J. Taylor,** resigned to join the **Santa Fe** as assistant general auditor, Chicago. **Markus W. Zanow,** director of data systems, succeeds Mr. Taylor. **Victor C. Bohne,** assistant comptroller, becomes director of accounting.

In a restructuring of the Central sales region into three divisions, **James V. McEntee,** assistant regional manager, Central region, becomes regional manager-freight sales of the new Indiana-Ohio region, with headquarters remaining in Chicago; **Bernard M. Schwartz,** assistant regional manager, Central region, named regional manager-freight sales of the new Missouri-Kansas region, with headquarters continuing in Kansas City. **John D. Kirtley,** regional manager-freight sales, continues to head the Central region.

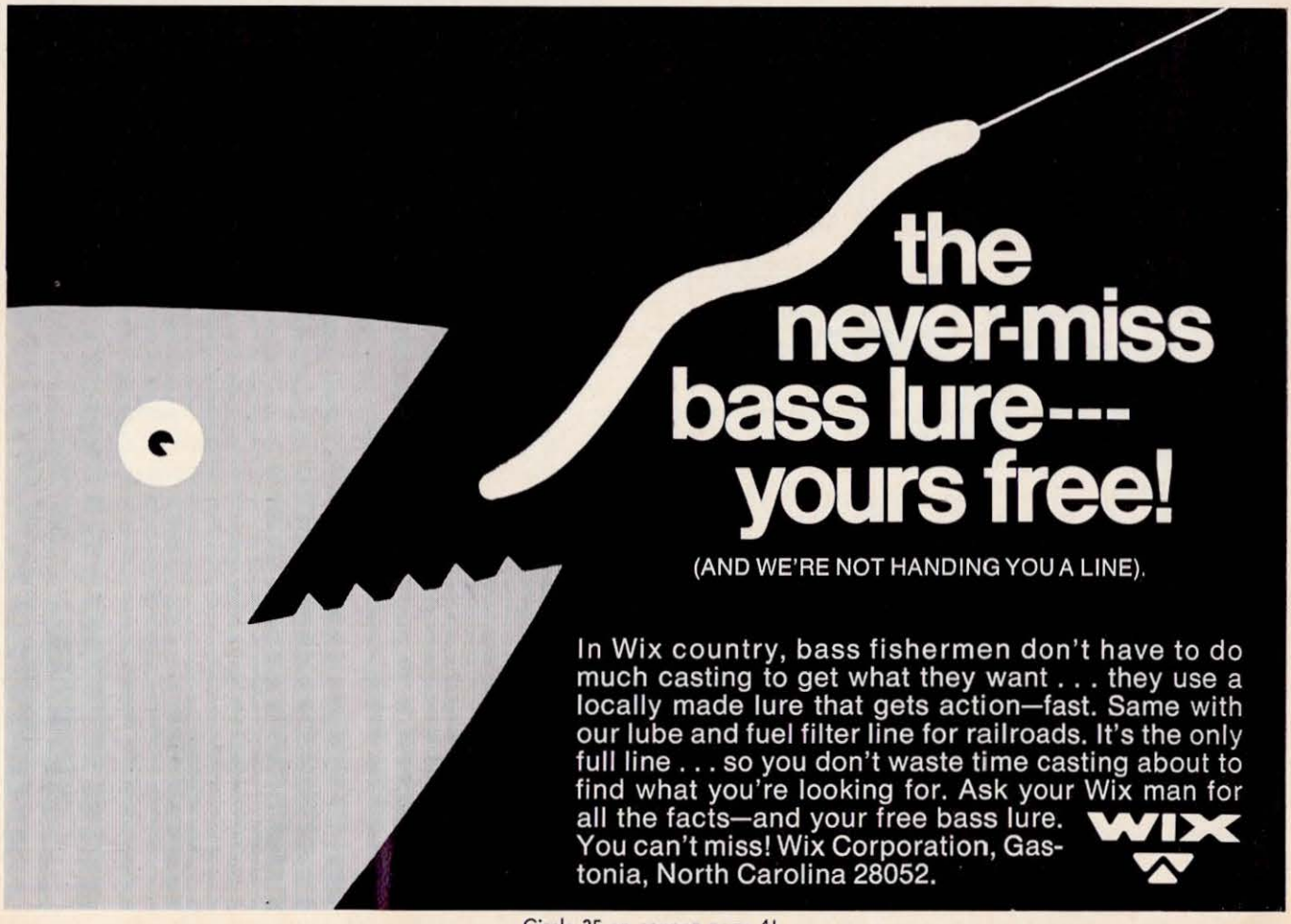
SANTA FE.—**William J. Taylor** appointed assistant general auditor, Chicago, Mr. Taylor was formerly comptroller, **Rock Island.**

L. B. English named assistant general manager—mechanical, Los Angeles.

H. G. Webb named district engineer, Los Angeles, with jurisdiction over the Albuquerque and Los Angeles divisions, succeeding **R. O. Nutt,** promoted.

SOUTHERN.—**Norman G. Heller,** director of operations research, Systems Section, Management Information Services Department, appointed general manager, Services Industries, Marketing and Planning Division, Washington, D.C. **Joseph A. Kirkman,** special representative, Intermodal

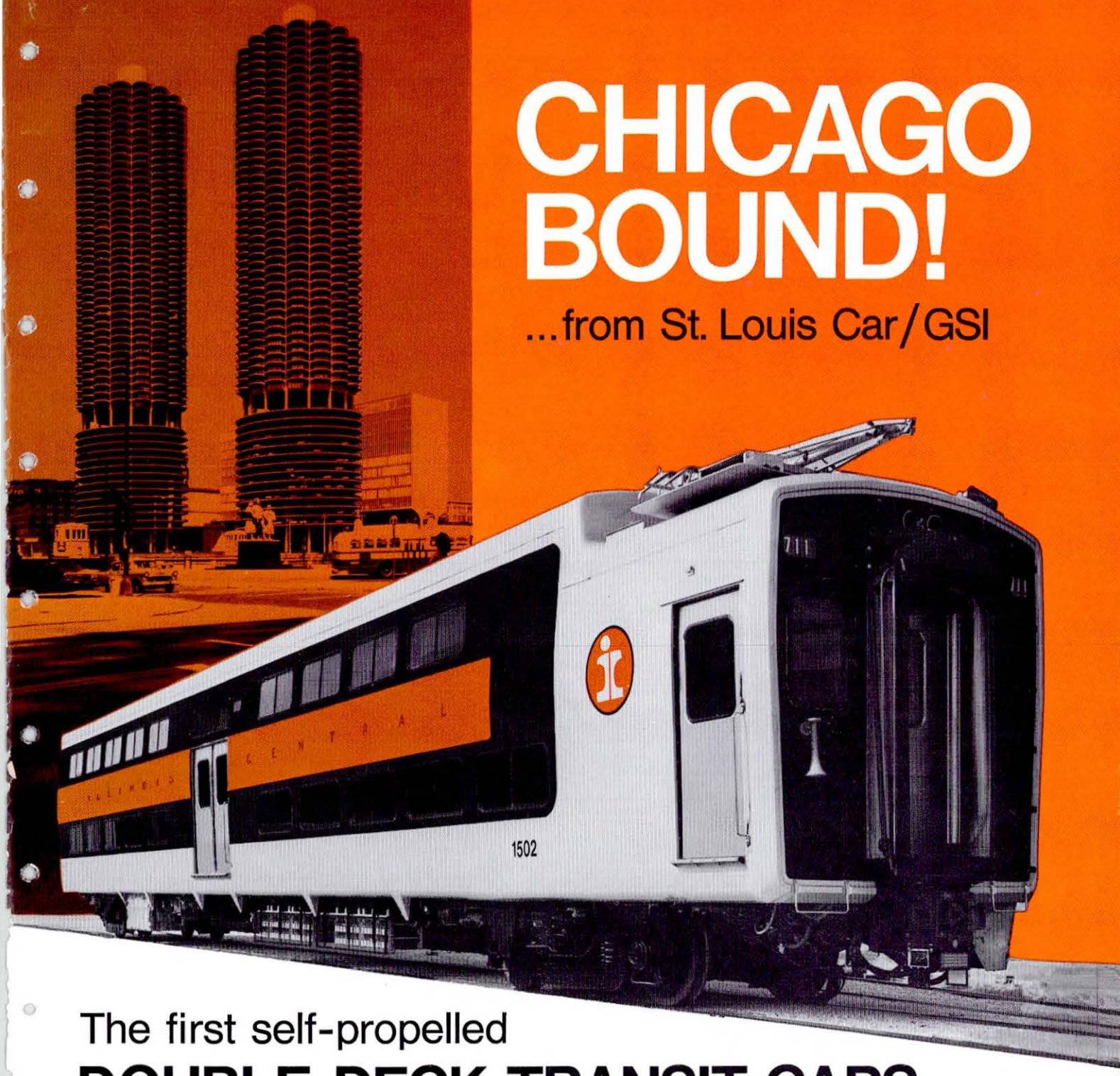
(*Continued on page 57*)


the never-miss bass lure--- yours free!
(AND WE'RE NOT HANDING YOU A LINE).
In Wix country, bass fishermen don't have to do much casting to get what they want . . . they use a locally made lure that gets action—fast. Same with our lube and fuel filter line for railroads. It's the only full line . . . so you don't waste time casting about to find what you're looking for. Ask your Wix man for all the facts—and your free bass lure. You can't miss! Wix Corporation, Gastonia, North Carolina 28052.
WIX

Circle 25 on coupon page 41

CHICAGO BOUND!

...from St. Louis Car/GSI



The first self-propelled
DOUBLE-DECK TRANSIT CARS

A new fleet of 130 double-deckers for the Chicago South Suburban Mass Transit District will be rolling out of St. Louis Car in 1971-72. The new cars will be operated by the Illinois Central Railroad, and each will carry 156 seated commuters.

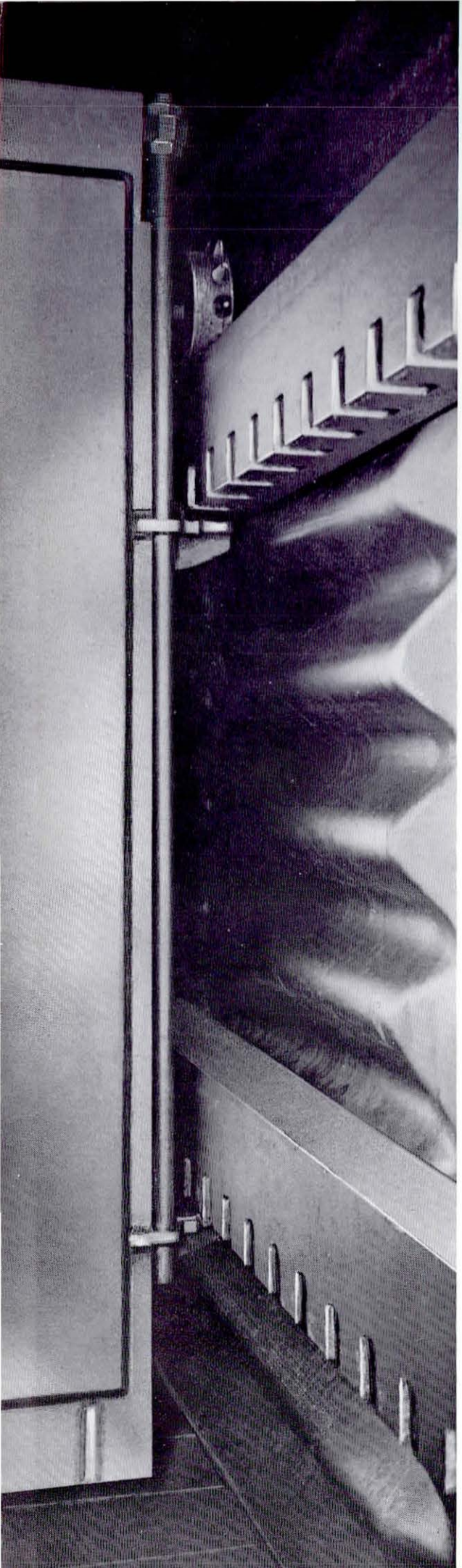
General-70 cast steel trucks by GSI assure a safe, smooth, air-cushioned ride. Air conditioning, vinyl upholstery, the latest in lighting and public address systems all add to passenger comfort and convenience.

Exceptionally light in weight for their size . . . these big cars are engineered for economical operation.

Once again — the new and different in rapid transit comes from St. Louis Car/GSI.

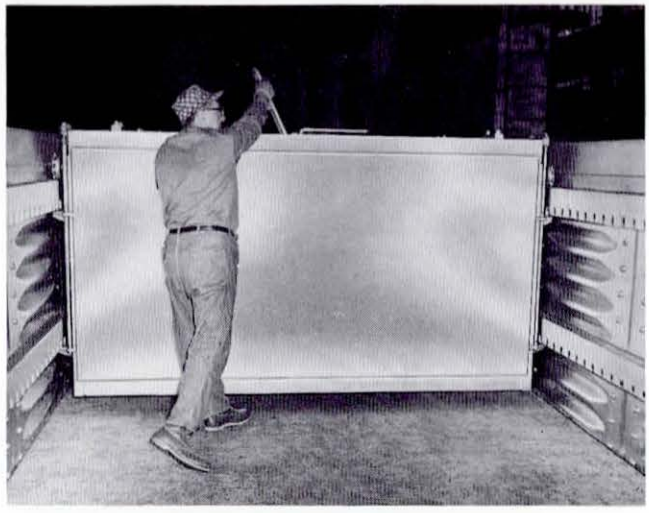
ST. LOUIS CAR DIVISION | **GSI**

St. Louis Car Division / General Steel Industries, Inc.
St. Louis, Mo. / Philadelphia, Pa. / San Francisco, Calif.



Stanray's Automatic Locking Bulkhead

Super tough. Yet, one man can push it around.



Cuts set-up time to a fraction. One operator can easily move the bulkhead and lock the bulkhead into position with a minimum of time and effort. He simply raises a handle, and easily rolls the bulkhead to its new position (reset in 2-in. increments). When the handle is released, the bulkhead automatically locks into the belt rail. All of the locking mechanisms are gravity activated.

Tests prove Stanray's new bulkhead has an ultimate strength of 115,000 lbs., and a yield strength of 83,000 lbs. The 9-in. thick framework and heavy cast steel locking members provide this bulkhead's super toughness.

Faster set-ups, tougher protection. Automatic locking bulkheads can help you do a better job of running your railroad. Call your Standard representative for complete information.

STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
Chicago • Hammond, Indiana
IN CANADA: Davanac Industries, Montreal, Quebec

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended March 27 totaled 516,657 cars, according to the Association of American Railroads. This was an increase of 5,527 cars, or 1.1%, compared with the previous week, and a decrease of 5,487 cars, or 1.1%, compared with the corresponding week last year.

REVENUE FREIGHT CARLOADINGS

Commodity	Mar. 27 week	Mar. 20 week
Grain	24,800	23,960
Farm products	10,874	10,356
Metallic ores	22,610	26,061
Coal	105,161	101,256
Crushed stone, gravel & sand	23,915	23,931
Nonmetallic minerals	9,320	8,991
Grain mill products	18,707	18,266
Food & kindred products	24,884	25,030
Primary forest products	24,971	24,709
Lumber & wood products (except furniture)	15,573	15,134
Pulp, paper & allied products	23,341	22,936
Chemicals & allied products	32,039	30,667
Petroleum products	9,620	9,488
Stone, clay & glass products	18,571	18,091
Coke	8,153	9,192
Metals & products	28,727	27,306
Motor vehicles & equipment	26,011	25,288
Waste & scrap materials	15,814	15,752
Forwarder & shipper assn. traffic	5,613	5,769
All other carloads	67,380	66,291
LCL traffic	573	565
Total cars loaded	516,657	509,039

CUMULATIVE TOTAL, 13 weeks	1971	1970	1969
	6,311,060	6,450,123	6,571,284
Estimated revenue ton-miles (billions) 13 weeks	183.2	185.2	184.6

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended March 20 totaled 23,654 cars (12.5% below the corresponding week last year) and 38,627 trailers or containers (down 16.1% from 1970). Cumulative volume for the first 12 weeks of 1971 is 269,207 cars (off 8.2% from last year) and 431,134 trailers or containers (down 13.7% from 1970). In addition to freight, 3,702 cars carrying 5,291 trailers or containers of mail and express traffic were handled piggyback. Cumulative figures for the first 12 weeks of 1971 are 41,902 cars (up 6.6% from the 1970 total), and 59,801 trailers or containers (down 5.8% from 1970).

IN CANADA

7 days ending	Revenue Cars Loaded	Cumulative Totals
March 14, 1971	3,729,636	35,784,400
March 14, 1970	3,653,860	36,650,134

TRANSIT

● *PATH.*—Kaiser Aluminum & Chemical Corp. will supply the major structural aluminum requirements for 46 rapid transit cars to be built by Hawker Siddeley Canada Ltd. for the Port Authority Trans-Hudson Corp.

● *U.S. Department of Transportation.*—Awarded a $716,862 contract to AiResearch Manufacturing Co., a division of the Garrett Corp., Torrance, Calif., for design of an electric wayside power station for a 300-mph TACV guideway at DOT's High Speed Ground Test Center, Pueblo Col.

FREIGHT-TRAIN CARS

● *Bessemer & Lake Erie.*—Ordered 800 rapid-discharge open-top hopper cars from Pullman-Standard for delivery beginning in July.

● *Burlington Northern.*—Ordered 65 100-ton, 4,180-cu-ft-capacity Airslide covered hopper cars from General American; and 10 100-ton, 4,650-cu-ft-capacity Center Flow covered hopper cars from Amcar division of ACF. Deliveries are scheduled for fourth-quarter 1971.

● *Chesapeake & Ohio/Baltimore & Ohio.*—Placed in service 35 new cars for hauling communication and power cable which can reduce loading and unloading costs by 83%. The car was developed by C&O/B&O in cooperation with large cable manufacturing firms using its lines. Patent rights for the car have been applied for. Early tests indicate that shipments move virtually damage-free. The fleet will be supplemented as demand increases. Demonstrator cars of the new design will be made available to shippers for test runs. The car comes in two sizes: a 60-ft model capable of handling 150,000 lb and a 68-ft version which holds 180,000 lb.

● *Norfolk & Western.*—Ordered 75 50½-ft box cars from the Amcar Division of ACF at an approximate cost of $1.7 million. All will be "Precision Design" cars with ACF Freight-Saver center-of-car cushioning and 70-ton roller bearing trucks. The cars will have staggered 16-ft double-plug doors, 50,000-lb flooring and Evans Air Pak bulkheads. Delivery is scheduled to begin late in the 1971 second quarter.

● *Pacific Fruit Express.*—Ordered 1,200 mechanical refrigertor cars from Pacific Car & Foundry at a cost of $40 million. Cars will be equipped with cushion underframe, load-restraining devices and 10½-ft doors, and will have foamed-in-place insulation. Deliveries are under way and will be completed by mid-July.

● *Orders and deliveries.*—Orders were placed for 3,042 new freight cars in February, compared with 3,152 in the preceding month and 3,632 in February 1970. New cars on order and undelivered on Mar. 1 totaled 25,015, compared with 26,903 on Feb. 1, and 40,704 on Mar. 1, 1970.

FREIGHT TRAIN CARS DELIVERED AND ORDERED IN FEBRUARY AND BACKLOG OF ORDERS

DELIVERED

	Feb. 1971	Jan. 1971	Feb. 1970
Built new by carbuilders	4,059	3,183	4,859
Built new in R. R. shops	570	542	986
Built new—total	4,629	3,725	5,755
Rebuilt	318	655	487
TOTAL DELIVERED	**4,947**	**4,380**	**6,242**

ORDERED

To be built new by car builders	2,792	2,932	3,236
To be built new in R.R. shops	250	220	396
To be built new—total	3,042	3,152	3,632
To be rebuilt	500	282	500
TOTAL ORDERED	**3,542**	**3,434**	**4,132**

ON ORDER AND UNDELIVERED

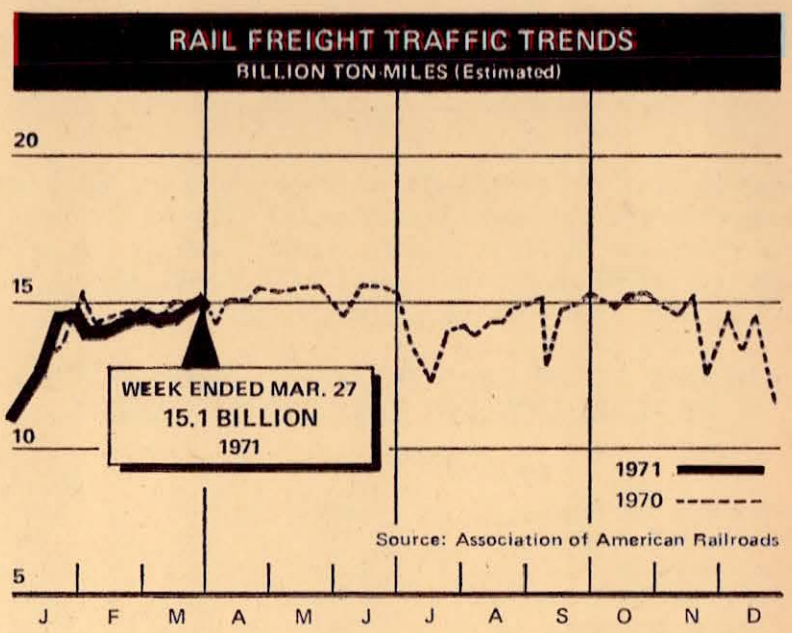
	Mar. 1, 1971	Feb. 1, 1971	Mar. 1, 1970
To be built new by car builders	20,425	21,993	30,759
To be built new by R.R. shops	4,590	4,910	9,945
To be built new—total	25,015	26,903	40,704
To be rebuilt	2,193	2,011	5,445
TOTAL ON ORDER	**27,208**	**28,914**	**46,149**

NEW FACILITIES

● *Ann Arbor Railroad.*—Awarded a 10-year contract to Syntonic Technology, Inc., for lease/maintenance of a communication system. Syntonic will supply, install and maintain locomotive, automobile, portable and remote base station radio units between Toledo, Ohio, and Owosso, Mich., 106 miles.

● *Black Mesa & Lake Powell.*—A contract has been awarded to General Electric's Transportation Systems Business Division for a 50,000-volt electrification system that will provide power and automation on the new BM&LP (RA, March 29, p. 16). In addition to three 6,000-hp thyristor-controlled electric locomotives, GE will supply the substation equipment and complete automation, including control of automatic loading and unloading loops and speed control on the main line. The 80-mile railroad, under construction by the Morrison-Knudson Co., will serve the Navajo Generating Station near Page, Ariz.

● *Burlington Northern.*—Purchased CTC equipment from General Railway Signal for installation between Wishram and Vancouver, Wash.



NEW ORDERS FOR MACHINE TOOLS*

	February 1971 ($000)	February 1970 ($000)	2 mos. 1971 ($000)	2 mos. 1970 ($000)
Metal cutting tools	39,000	62,850	75,750	155,100
Metal forming tools	20,300	31,700	37,750	54,000

MACHINE TOOL SHIPMENTS*

	February 1971 ($000)	February 1970 ($000)	2 mos. 1971 ($000)	2 mos. 1970 ($000)
Metal cutting tools	59,600	87,350	117,450	181,200
Metal forming tools	31,600	31,600	62,750	80,300

**Including foreign and domestic.*
Source: National Machine Tool Builders' Association.

Viewpoint

THE ASTRO "lobby"— fact vs invective

If a soft answer turneth away wrath, then AAR President Stephen Ailes was the perfect man to respond to the shrill charges recently made on the Senate floor by Lee Metcalf, the disgruntled Democrat from Montana.

Senator Metcalf accused the railroads of mounting "an expensive lobbying campaign" to promote the goals of ASTRO (America's Sound Transportation Review Organization)—which he sourly suggested might more appropriately be called CASTRO, for "Congressional Action for a Slick Transportation Rip Off."

Mr. Ailes replied gently that Senator Metcalf was correct in suggesting that "we are . . . doing everything we possibly can . . . to make certain the public fully understands the critical problems besetting this country's railroads."

Good for Mr. Ailes. But since the Metcalf blast that preceded the launching of ASTRO on Capitol Hill has received such widespread publicity, perhaps a more detailed reply to the Senatorial invective may be in order.

If Mr. Metcalf doesn't know it, he should be informed that the "expensive" advertising campaign mounted by the AAR in behalf of ASTRO comes to the handsome total of something more than $2.5 million, on an annual basis. That is about half of the AAR's pre-ASTRO advertising budget—which hardly suggests that the railroads are pulling out all the stops. On the contrary, most railroad advertising men feel that this "lobbying" expenditure, if it can be called that, is far too puny.

It is puny indeed compared to the advertising efforts of, for example, the airlines. The March 29 issue of Advertising Age reports that seven major trunk airlines spent around $146 million on media advertising alone in 1970—more than 50 times as much as the railroad industry is now investing (to Senator Metcalf's astonishment) in telling *their* story.

Actually, the ASTRO campaign is almost entirely a volunteer effort on the part of railroad men who, in their spare time and in addition to their regular jobs, are telling the ASTRO story across the land.

It is suggested elsewhere in this issue (Watching Washington, p. 13) that Senator Metcalf is sore at the railroads because (1) Railpax has short-shrifted the State of Montana and (2) the Senator is besieged with reports from his constituents about freight-car shortages.

About Railpax the railroads can do nothing. The Railpax decisions have been made by the Department of Transportation.

As for freight-car shortages, ASTRO itself can do more than anything else to provide a solution. A primary goal of ASTRO is to permit railroads to re-equip and modernize in such a way that future shippers, in Montana and elsewhere, will have less cause than they do today to complain that they cannot get their goods to market (or raw materials to their plants) on time.

Senator Metcalf's pique is understandable. Railroads have not done the jobs of which they are capable. To do the job, they need a hand (not, as the Senator appears to believe, a handout). That is what ASTRO is all about.

(*Continued from page 50*)

Relations, **Southern,** appointed manager, operations and sales, **Central of Georgia Motor Transport,** Macon, Ga.

Harvey H. Bradley, assistant vice president-safety and freight claim prevention, appointed assistant vice president-transportation, succeeding **J. Bruce Addington,** who resigned to become vice president-operations, **Penn Central** (RA, Jan. 11, p. 43). **Frank M. Kaylor,** vice president, **Cincinnati, New Orleans & Texas Pacific,** Southern subsidiary, succeeds Mr. Bradley.

Homer T. Brewer, assistant director, State Tax Admin'stration, Southern system, appointed director, with headquarters remaining at Atlanta, Ga. He succeeds **Robert G. Pruitt,** retired after more than 45 years of service.

Donald H. Holliday, manager, Procedures & Forms Control, appointed director, Information Services, Atlanta.

Joseph G. Hoerth appointed director, commercial real estate development, Washington, D.C. He was formerly executive vice president and consultant, InterLiving Corp. **Wilhelm A. Zeitler** appointed senior real estate attorney, Washington. He joined the Southern's Real Estate and Conveyancing Department in June 1968.

SOUTHERN PACIFIC.—Manuel Perez E., general agent Monterrey, Mex., transferred to Guadalajara, Jal., Mex., to succeed **Ricardo G. Alcala,** who retired Dec. 31, 1970. **Ignacio Munoz,** traveling freight agent, Monterrey, succeeds Mr. Perez.

TRAFFIC EXECUTIVE ASSOCIATION—EASTERN RAILROADS.—John J. Hogan appointed tariff publishing officer, New York.

TRAILER TRAIN.—Rene H. Brodeur, manager—marketing and research, Philadelphia, named director—engineering and research, replacing **Max Seel,** retired. **Lawrence P. Greenfield,** assistant manager—research, promoted to manager—research. **Boris Terlecky,** assistant manager—engineering, promoted to manager—engineering.

UNION PACIFIC.—L. C. Chamberlin named assistant to controller, Omaha. **C. D. Mayer** appointed director-accounting operations, and **J. R. Houston,** director-revenue accounting, both at Omaha. Also at Omaha, **R. W. Vandercreek** named manager-administrative budgets and analysis; **D. M. Harriman,** manager-general accounting; **A. H. Smith,** manager-general ledger accounting; **C. J. Janis,** manager-billing and contracts; **P. G. McDermott,** manager-property accounting; **R. C. Thompson,** manager-accounts payable; **J. J. Glogowski,** manager-material and station accounting; **D. L. Riege,** manager-accounting research; **K. R. Andersen,** manager-personal accounting; **H. T. Lewis,** manager-equipment service accounting; **D. J. Peterson,** manager-revenue accounting research; **M. R. Limbeck,** manager-freight accounting; **K. J. Koehler,** manager-revenue services; **R. K. Austin,** manager-passenger accounting; **C. R. Tefft,** manager-rates and divisions; **R. A. Clark** manager-accounting control and reporting; **J. G. Hetmanek,** manager-billing and accounts receivable; **R. A. Sokol,** manager-material and station accounting.

Robert S. Olsen, general traffic agent, Detroit, named traffic manager, Omaha, to succeed **Ralph A. Foral,** who retired Dec. 31, 1970, after 48 years' service.

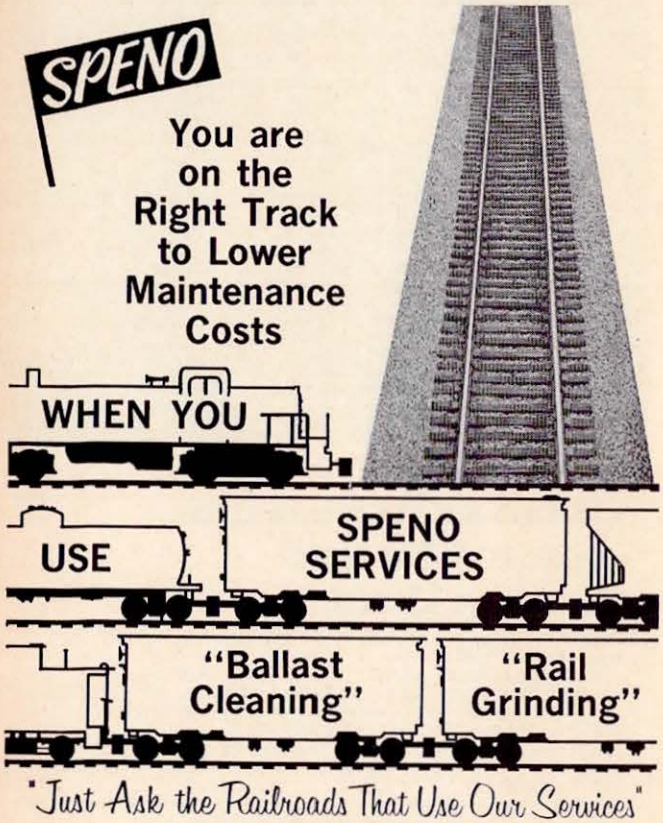
Charles C. Larkin, assistant to the vice president-operation, Omaha, named to the newly created position of manager trailer and container operation there. Mr. Larkin's successor is **Robert L. Richmond,** general superintendent, northwestern district, Portland, Ore. **Eddie C. May,** assistant superintendent, Kansas City, Kans., appointed superintendent, Nebraska division, Omaha.

Augustus M. Underhill named to the newly created position of director, business planning and analysis for the transportation division, with headquarters in Omaha. Mr. Underhill was formerly director, budgetary administration, **Penn Central.**

Norman R. Linse, assistant director of cost and economic research, named to the new post of coal traffic manager, Omaha.

Warren E. Miller, assistant director-COIN, appointed director, classification control, with headquarters remaining in Omaha.

A. K. Eiben named director, EDP operations; **R. F. Curran,** director, programming systems development; **L. E. Anderson,** director, information systems development—COIN; **J. F. Magirl,** manager, computer operations; **F. J. Trouba,** manager, computer operations, planning and control; **J. W. McCartney,** director, administrative service; **W. E. Rice,** manager, staff services; **P. R. Sturgeon,** manager, systems programming;



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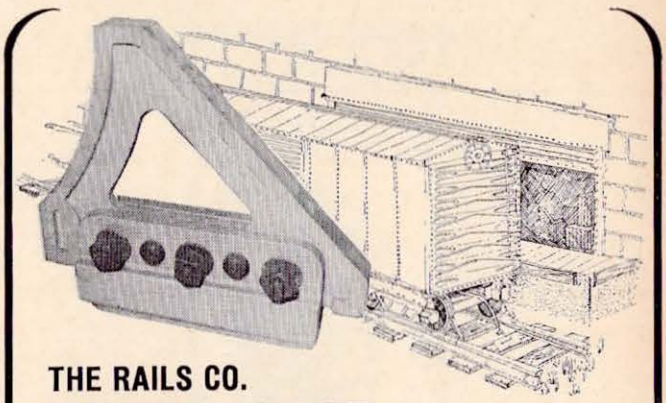
Circle 28 on coupon page 41



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Circle 29 on coupon page 41

R. A. Guinotte, manager, application programming; **W. T. Duckworth,** manager applied programming; **R. L. Meradith,** manager standards, documentation and education; **D. L. Hatcher,** manager, systems support; **L. J. Taylor,** manager, general systems; **G. D. Kaufman,** manager, financial/accounting systems; **M. E. Hurd,** manager, revenue accounting systems, all with headquarters in Omaha.

WESTERN MARYLAND.—**M. E. Donegan** appointed manager—automotive division, Port Covington, Md.

WESTERN PACIFIC.—**L. E. Lelevich,** district engineer, Sacramento, Calif., appointed superintendent of maintenance of way operations, service center there. Mr. Lelevich's successor is **M. K. Anderson,** transferred from Elko, Nev., who in turn is succeeded by **J. T. Smith,** assistant district engineer, Elko. **T. A. Merritt,** roadmaster, Elko, named to succeed Mr. Smith.

WESTERN RAILROAD ASSN.—**Frank J. Stanton** appointed director of personnel and public relations.

R. C. Nichols named assistant manager of the association's **Western Weighing and Inspection Bureau,** Chicago, to succeed **Edmond C. Clark,** who retired Dec. 31, 1970, after 48 years of railroad service.

Norman S. Landgraff elected chairman, **Trans-Continental, Western** and **Southwestern Railroad Passenger Associations** and allied agencies and bureaus.

DIVIDENDS DECLARED

ALGOMA CENTRAL.—10¢, quarterly, paid March 1 to holders of record Feb. 8.

BURLINGTON NORTHERN.—5½ Preferred, 13¾¢, paid March 31 to holders of record March 12; 37½¢, quarterly, payable May 12 to holders of record April 15.

CANADA SOUTHERN.—$1.50, semiannual, paid Feb. 1 to holders of record Jan. 19.

CHESAPEAKE & OHIO.—$1, quarterly, paid March 20 to holders of record March 1.

COLORADO & SOUTHERN.—4% 1st Pref., $4, paid Dec. 31, 1970, to holders of record Dec. 28.

GULF, MOBILE & OHIO.—$5 Preferred, $1.25, quarterly payable Sept. 13 to holders of record Aug. 23.

ILLINOIS CENTRAL.—$3.50 Preferred, 87½¢, quarterly, paid April 1 to holders of record March 5.

MONON.—15¢, paid March 29 to holders of record March 5.

NORFOLK & WESTERN.—$1.25, quarterly, paid March 10 to holders of record Feb. 8.

PITTSBURGH & LAKE ERIE.—$3, payable April 15 to holders of record April 5.

PITTSBURGH & WEST VIRGINIA.—12¢, quarterly, paid March 31 to holders of record March 8.

SOUTHERN.—75¢, quarterly paid March 15 to holders of record Feb. 11; 5% Preferred, 25¢, quarterly, payable March 15, June 15 and Sept. 15 to holders of record Feb. 11, May 14, and Aug. 13, respectively.

SOUTHERN PACIFIC.—45¢, quarterly, paid March 22 to holders of record March 1.

UNION PACIFIC.—50¢, quarterly; 4% Preferred, 20¢, semiannual, both paid April 1 to holders of record March 8.

WESTERN MARYLAND.—40¢, quarterly, paid March 31 to holders of record March 15.

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William W. Boyd has been named group vice president, **United States Gypsum Co.** Mr. Boyd, formerly president of **USG's** subsidiary, **Kinkead Industries, Inc.,** will oversee operation of Kinkead and the **Fiberesin Plastics, Metal Products** and **Transportation Products** divisions.

D. Cameron Lacy, has been appointed sales manager, Railway Division, **Brenco Incorporated,** Petersburg, Va. Mr. Lacy was formerly district sales manager, Philadelphia, Pa.

K. C. Langtry has been named service manager, **Railway and Transit Products, Diesel Division, General Motors of Canada Limited,** London, Ont. **Harold E. Mitchell**

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C.H. Yiu, Managing Director

has been appointed manager sales engineering, Railway and Transit Products and **John W. Jarrell,** sales manager, Railway and Transit Products.

E. F. Heffernan, Jr., has been named executive vice president—industrial products, **Budd Co.,** Philadelphia. Mr. Heffernan is responsible for the company's Polychem and Railway Divisions, as well as for the Budd Technical Center at Fort Washington, Pa. He is also responsible for the foreign plastics operations.

V. G. Eyre has been appointed market director of **Rust-Oleum Limited** at Birmingham, England. He was formerly managing director, Monks & Crane, Ltd., Birmingham.

M. I. Rayner has been appointed president, and **J. H. Bruen,** controller, of the recently organized **Edison Battery Division, McGraw-Edison Co.** Mr. Rayner had been vice president and manager, Primary Battery Division, Thomas A. Edison Industries, which has now been re-aligned into four separate operating divisions.

Robert D. O'Neal has been appointed president, Precision Seal Division, **Garlock Inc.,** Rochester, N.Y. He was formerly division manager, Parker Seal Co. and manager, National Seal Division, Federal Mogul Corp.

Edwin W. Cox has been named vice president, **W. T. Cox Co.,** Kansas City, Mo. He will manage the railway sales department.

M. Amiel, secretary-treasurer, **Timken France,** has been appointed assistant general manager, **Timken Europe** and Timken France. **S. H. Pratt,** superintendent labor relations, Steel & Tube Operations, Timken Co., Canton, Ohio, has been appointed assistant to managing director, **British Timken.**

F. Bruce Vernon, executive vice president, Carbon Products Division, **Union Carbide Corp.,** New York, has been appointed president of the division.

Robert G. Wood has been appointed vice president—marketing, **Huck Manufacturing Co.,** Detroit, Mich. He was formerly with Standard Pressed Steel Co.

Joseph J. Needleman, controller, has been promoted to vice president—finance and chief financial officer, **Integrated Container Service, Inc.,** New York.

George Lively, executive vice president, Luminator Division, **Gulton Industries,** Metuchen, N.J., has been appointed president of the division.

In the **Industrial Products Group, Evans Products Co., John C. Felten** has been elected president, **U. S. Railway Equipment Co.** Mr. Felten will continue as vice president and general manager of Evans' **Railway Equipment Division. W. S. Wise** has been named to the newly created position of group vice president-controller, **Industrial Products Group.**

Joseph H. Bush has been appointed vice president, railway products sales, **Jackson Vibrators** and its subsidiary, **O. F. Jordan Co.,** Chicago.

Coverdale & Colpitts, Inc., has been acquired by **Madigan-Praeger, Inc.,** a New York affiliate of **URS Systems Corp.,** San Mateo, Calif. To further broaden its capabilities in the field of mass transportation, Coverdale & Colpitts has elected four new vice presidents: **Clark T. Abbott, Robley H. Morrison, Peter W. Sugg,** and **Girard L. Spencer, Jr.**

James R. Early has been appointed district manager of the new office which the **Okonite Co.** has opened to serve customers in the Washington, D.C. area. The office is located in Suite 301, Wood Bldg., 145 Church St, N.W., Vienna, Va. 22180.

Thomas E. Callahan has been named sales service engineer, **Unit Rail Anchor Co.,** Pittsburgh.

Allen F. Rhodes has been elected vice president of corporate planning and development, **ACF Industries,** New York. Mr. Rhodes had been vice president of research and engineering, Rockwell Manufacturing Co.

Harold E. Eckstein, assistant supervisor of railroad product schedules, production scheduling division, sales department, **Bethlehem Steel Corp.,** Bethlehem, Pa., has been promoted to supervisor of railroad product schedules. Mr. Eckstein succeeds **Edward J. Green,** who retired Feb. 1 after more than 40 years with Bethlehem.

Carl L. Henricks, general sales manager of communications and signaling equipment, **Western-Cullen Division, Federal Sign & Signal Corp.,** Chicago, has been appointed to the newly created position of director of sales and marketing for all products of both the Western-Cullen Division and **Hayes Track.**

Roger D. Lotto, western regional sales manager, **Kameco Electronics,** has been appointed sales manager, communications equipment, **Western-Cullen Division, Federal Sign & Signal Corp. Stephen V. LaGorio,** sales engineer, Signal & Communications division, **WABCO,** has been named sales engineer, communications and signaling equipment, W-C.

Mont Mowder, sales engineer, **Ohio Brass Co.,** Mansfield, Ohio, has been appointed district manager, Toledo, Ohio.

Peter P. Philhower has been named manager, transportation refrigeration sales, **Trane Co.,** La Crosse, Wis.

Philip G. Brewer has been appointed general sales manager, Diesel Division, **General Motors of Canada Limited,** London, Ont., Can. Mr. Brewer was formerly sales manager, Railway and Power Products.

Buck Equipment Corp., Cincinnati, Ohio, has been purchased by **Desa Industries, Inc.** of suburban Baltimore, Md. The Cincinnati operation has been re-named the Material Handling Division of Desa Industries. Desa will continue to market railroad loading equipment under the Buck name.

Jackson H. Sell, division operations manager, **Butler Manufacturing Co.,** has been appointed general manager, Transportation Equipment Division, Minneapolis, Minn.

Harry A. Weglinski has been appointed manager, domestic sales and remanufacturing services, Transportation Group, **MLW Industries,** Montreal, Que., Canada. He will have responsibility for the promotion and sale of new locomotives to the domestic railroads and the remanufacturing capabilities and services in the Group's product lines to the market in general. **James L. Layton** has been appointed manager, U.S. Operations. **Colin M. Dathan** has been named manager, marketing and licensee services. **Ronald C. Marriott** has been appointed manager, sales international.

Benton H. Elliott has been named manager—business development, Transportation Propulsion Department, **General Electric Co.,** Erie, Pa.

Appointments at **Harmon Electronics,** Grain Valley, Mo.: **Robert E. Heggestad,** vice president—research and development; **Larry R. Long,** director of marketing, with responsibility for promotion of railroad products and test equipment; and **Richard A. Mather,** crossing signal engineer. Mr. Heggestad has had eight years experience in the Communications & Signal Department, **Penn Central** and New York Central. Mr. Mather has had 11 years of experience with the **Milwaukee** and **Chicago Belt,** as well as service with Western-Cullen and WABCO.

Railway Age Index

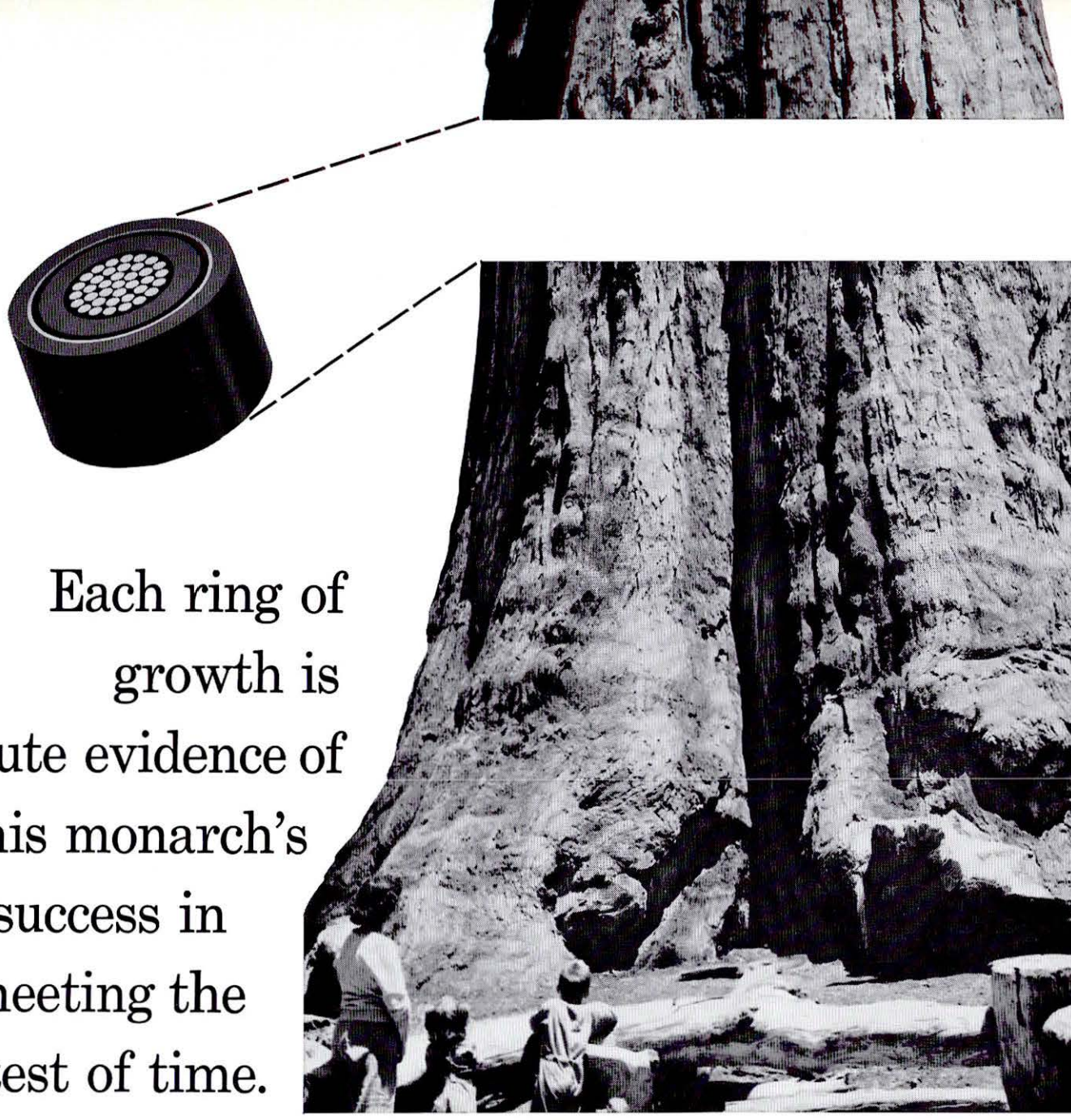
The index to Volume 169 of Railway Age, July-December, 1970, is ready for distribution. Copies may be had by those subscribers desiring them. Address requests to the Circulation Department, 508 Birch St., Bristol, Conn., 06010. Subscribers who in previous years applied for the index need not apply again. They will continue to receive it as long as they continue to subscribe.

OBITUARY

Frederick Bramley, 85, who retired in 1957 as secretary, **Canadian Pacific,** died March 1 in a hospital in Montreal, Que.

Heinz G. Doering, 54, superintendent of rapid transit shops and terminals, **Chicago Transit Authority,** died Feb. 24 in MacNeal Memorial Hospital, Berwyn, Ill.

Laurence H. Gillick, retired vice chairman, **Vapor Corp.,** died recently in Wilmette, Ill.



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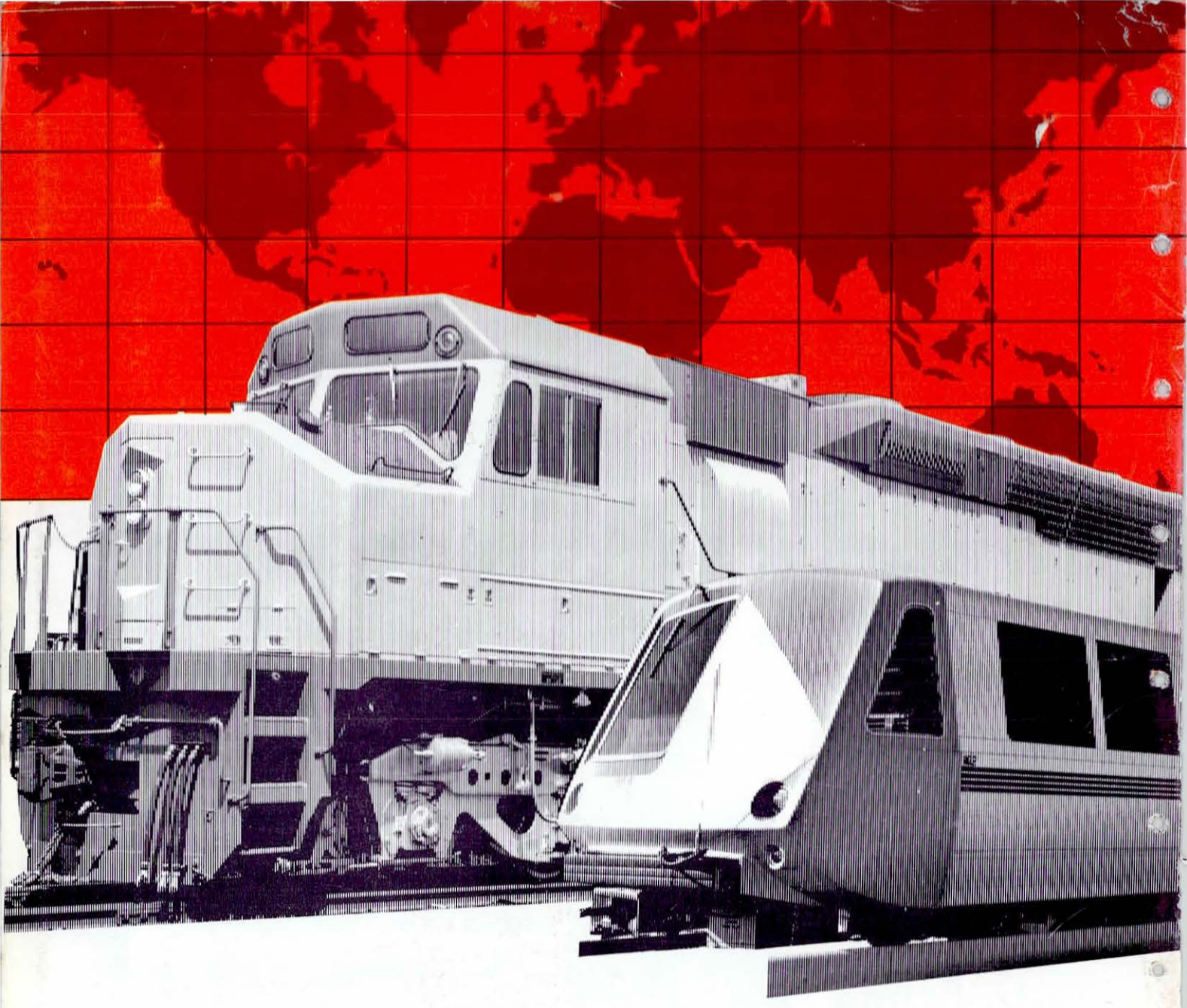

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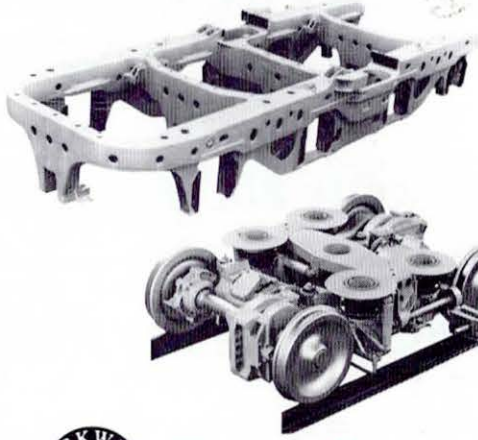

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